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I. INTRODUCTION

A city's general plan is a visionary document. It describes a future and outlines specific direction for reaching this future. However, to describe the future, the general plan must also examine the present and the past. It must present and evaluate information on the existing environment: its current status and the trends that created it. In addition, the general plan must look to the future, describing what the city will look like and who will be living here during the next twenty, thirty, forty, or fifty years.

The State of the City Report for the City of Lancaster presents information on the Lancaster General Plan Study Area, located in the central portion of the Antelope Valley in the northern portion of Los Angeles County, approximately 70 miles north of downtown Los Angeles (see Figure I-1). Immediately south of Lancaster is the City of Palmdale; the San Fernando Valley lies 60 miles to the south of Lancaster along Highway 14. The developing community of Rosamond in Kern County is located several miles to the north, while the lands to the east and west of the city are undeveloped and within unincorporated Los Angeles County.

As of 1990, the City's incorporated boundaries encompassed 93 square miles, or 59,385 acres. The City of Lancaster presently has an approved sphere of influence occupying 174 square miles beyond its City limits, primarily east and west of the City. In addition, the General Plan includes an area occupying 68 square miles west of the approved sphere area, which is referenced in this document as the "expanded study area." The locations of these various planning areas are shown in Figure I-2.

The individual chapters of the document present information that is historic and analyzes recent events to evaluate their impact on the future. It relates directly to the eight separate policy documents that, together, make up the City's general plan. The topics discussed in this text relate to the general plan policy statements as follows:

State of the City Report -- Natural Environment
Plan for the Natural Environment

State of the City Report -- Public Health and Safety
Plan for Public Health and Safety

State of the City Report -- Living Environment
Plan for the Living Environment

State of the City Report -- Physical Mobility
Plan for Physical Mobility

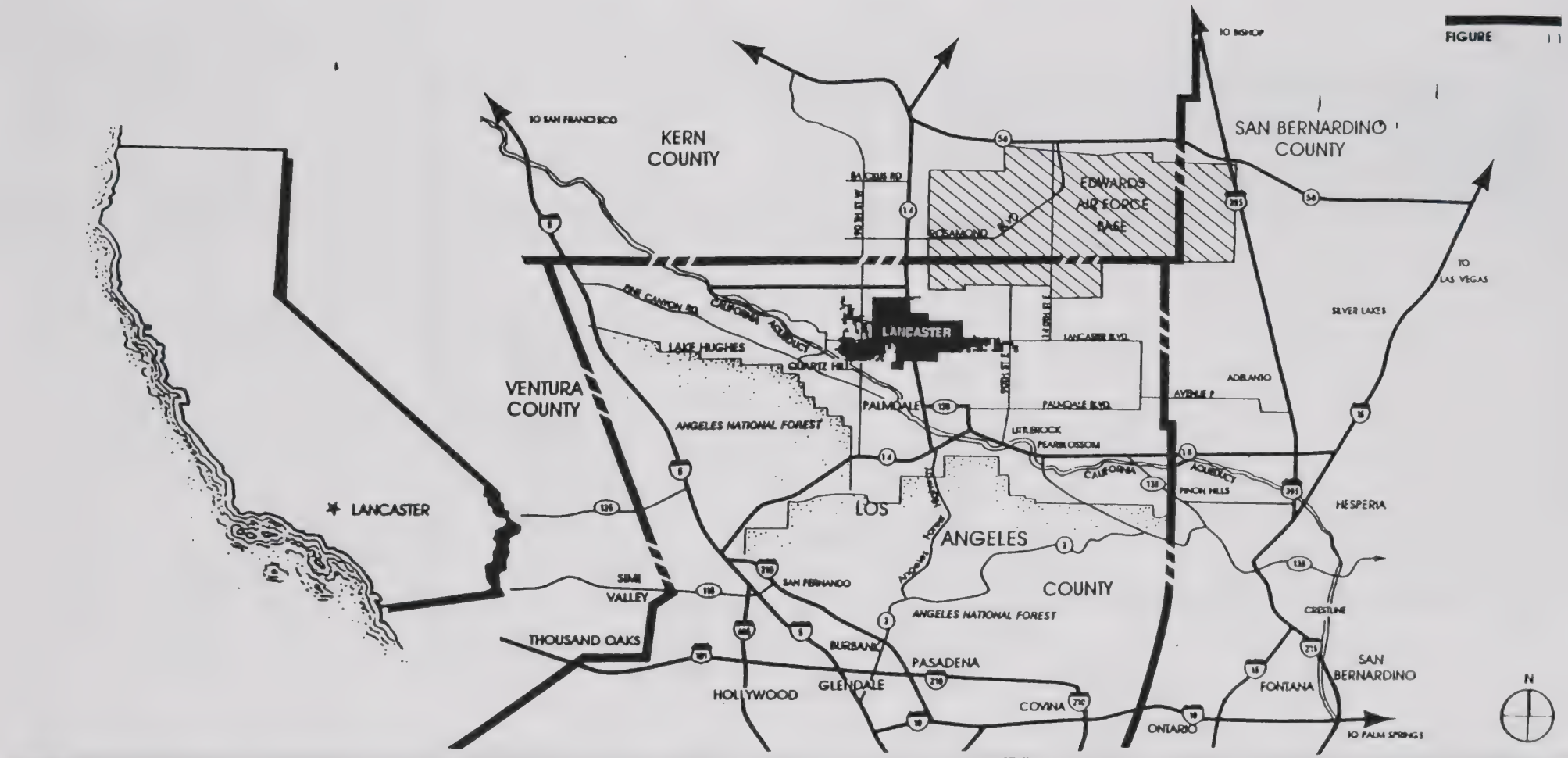
State of the City Report -- Municipal Services and Facilities
Plan for Municipal Services and Facilities

State of the City Report -- Economic Development and Vitality
Plan for Economic Development and Vitality

State of the City Report -- Physical Development
Plan for the Physical Development

Each of the State of the City Reports is divided into two sections. The first is the existing setting. This section presents historic trends and current information. It uses these statistics to project community characteristics for the timeframe of the general plan. The second section, the analysis section, evaluates implications of the data discussed in the existing setting on the future of Lancaster.

FIGURE 1.1



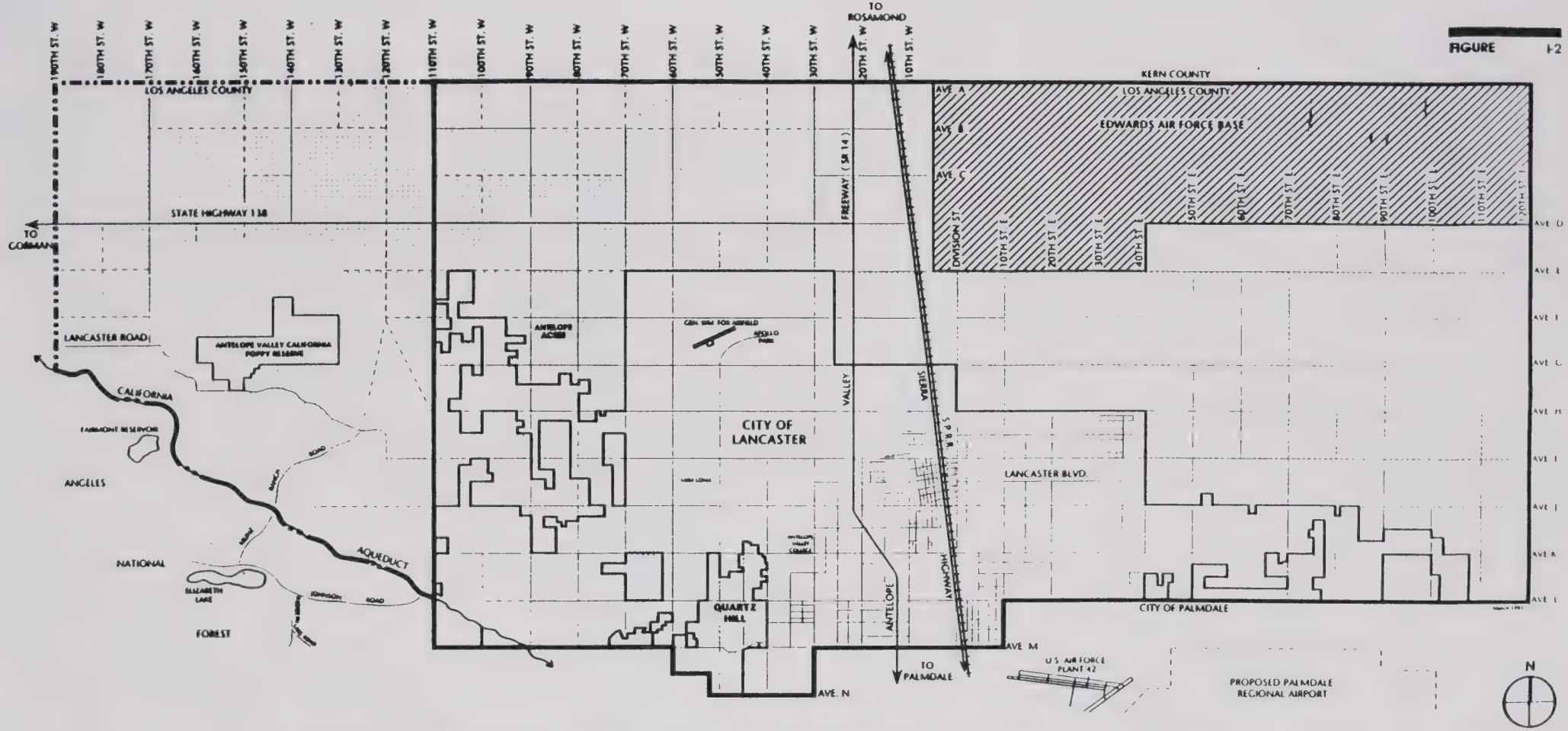
REGIONAL CONTEXT

PLANNING NETWORK

CITY OF LANCASTER
GENERAL PLAN

SOURCE: Planning Network, 1990.

FIGURE I-2



AREA CONTEXT

PLANNING NETWORK

- CITY BOUNDARY
- INCORPORATED AREA
  As of October, 1990
- SPHERE OF INFLUENCE BOUNDARY
- EXPANDED STUDY AREA
- UNINCORPORATED
- EDWARDS AIR FORCE BASE

SOURCE: City of Lancaster Planning Department

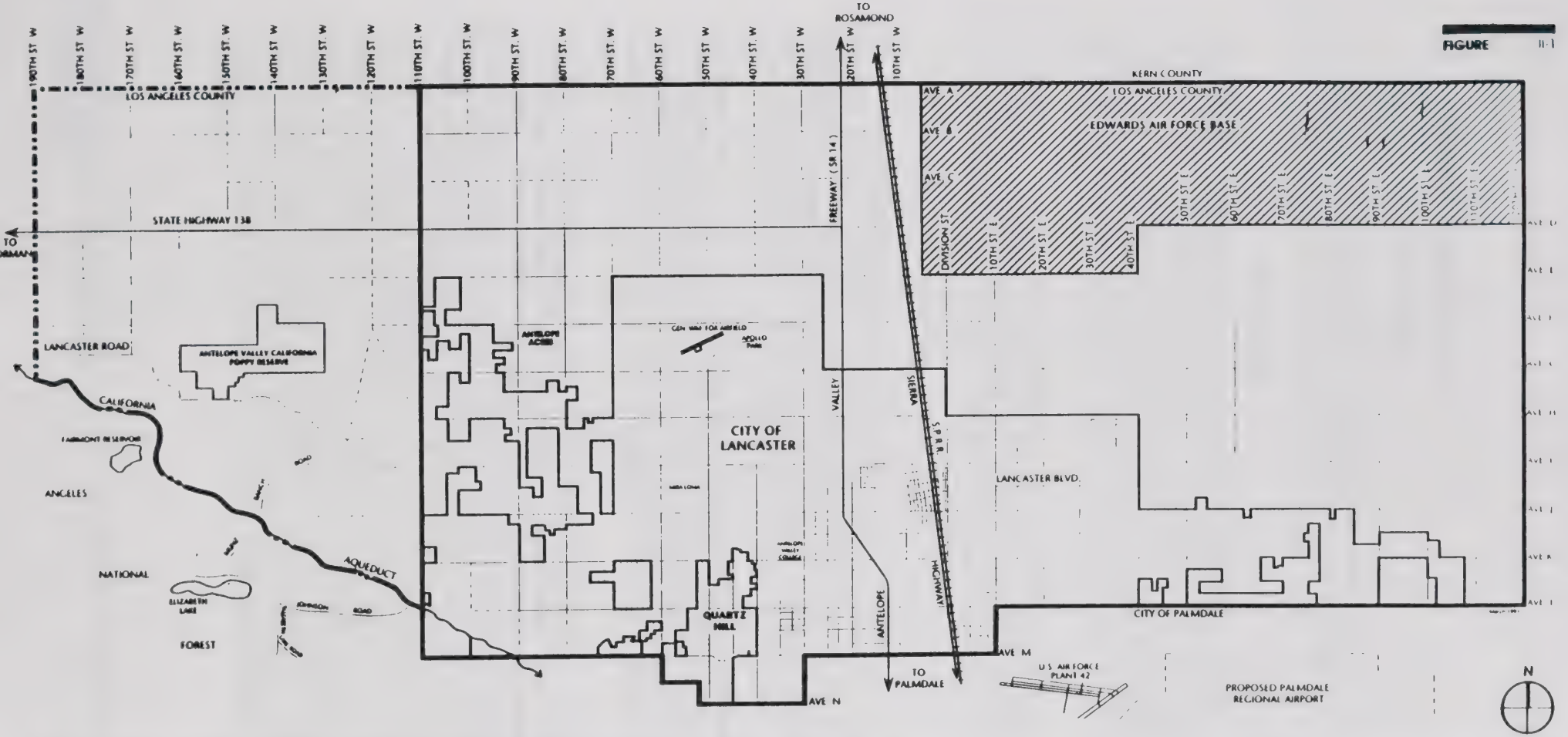
CITY OF LANCASTER
GENERAL PLAN

II. STATE OF THE CITY REPORT
NATURAL ENVIRONMENT

II. NATURAL ENVIRONMENT

INTRODUCTION

The Natural Environment Chapter is intended to evaluate the natural and man-made environment within the Lancaster General Plan study area (see Figure II-1). The chapter focuses on resources suitable for various levels of maintenance and protection, as well as their limitations for rural or urban use. In addition, the chapter establishes much of the City of Lancaster's environmental baseline information.



AREA CONTEXT

PLANNING NETWORK

- CITY BOUNDARY
- INCORPORATED AREA
  As of October, 1990
- SPHERE OF INFLUENCE BOUNDARY
- EXPANDED STUDY AREA
- UNINCORPORATED
- EDWARDS AIR FORCE BASE

SOURCE: City of Lancaster Planning Department

CITY OF LANCASTER
GENERAL PLAN

A. WATER RESOURCES

1. EXISTING SETTING

The following section discusses the significant water resources available to the City of Lancaster and its study area, including surface water and groundwater, major water import and storage systems, and groundwater quality.

a. Surface Water

Lancaster and its General Plan study area are located within the Portal Wash, Little Rock, Neenach, and Palmdale watersheds of the Antelope Valley drainage basin between the San Gabriel Mountains and the Mojave Desert, approximately 70 miles north of the City of Los Angeles. The Antelope Valley drainage basin consists primarily of alluvial fans extending north from the San Gabriel Mountains. The alluvial fans are naturally formed within the watersheds and do not have well-defined channels (see Figure II-A-1).

During storms, runoff from the San Gabriel Mountains creates temporary streams in the foothills. In the valley floor, this runoff forms streams in washes or occurs as sheet flooding. Surface water does not appear as perennial streams within the Antelope Valley; only in the San Gabriel Mountains do streams flow year round.

b. Groundwater

The Antelope Valley groundwater basin is subdivided into the West Antelope, Neenach, Buttes, Finger Buttes, Lancaster, Pearland, and North Muroc Sub-basins (see Figure II-A-1). The City of Lancaster and its study area are located within and draw water from the Lancaster sub-basin of the larger Mojave Basin. This is the largest sub-basin, and the only one composed of a two-aquifer system: the principal (upper) aquifer, and the deep (lower) aquifer (see Figure II-A-2).

The unconfined principal aquifer, which overlies the confining bed, supplies most of the groundwater for Lancaster. This aquifer extends through all sub-basins except North Muroc. The deep aquifer underlies the principal aquifer and is more than 800 feet below the ground surface. This aquifer is separated from the overlying principal aquifer by clay lenses, areas of bedrock, and remnants of old lakes.

Availability of groundwater is related to annual recharge levels. The total groundwater annual recharge is the quantity of groundwater that can be consumed annually, without overdrafting and (ultimately) permanently damaging groundwater resources. Since the average annual precipitation is less than 10 inches on the Valley floor, direct rainfall is inconsequential in terms of groundwater recharge. Natural recharge is derived largely from streamflow and near surface percolation, whose source is precipitation in the surrounding mountains. The U.S. Geological Survey (USGS) has estimated the annual recharge level for the entire Mojave Basin to be 76,000 acre-feet. This amount represents five percent of the total annual precipitation in the basin and also includes an annual recharge of 18,000 acre-feet to the adjacent Fremont Basin. Discussions with the Los Angeles County Waterworks District 4 indicate that the annual amount of water recharging the Mojave Basin has declined over the years and has reduced the total groundwater supply for the basin. Therefore, with the continued overdrafting of the basin over the years, the groundwater supply has slowly declined.

Los Angeles County Waterworks District 4, a major water purveyor for the area, stated that there is no formal recharge program for the Lancaster sub-basin or the Mojave Basin, and there are no existing recharge wells, reservoirs, or channels. There is only natural recharge associated with storm runoff and surface water percolation into the basin. Water District 4 is currently in the preliminary stages of a study of recharge areas. They have identified all the potential recharge areas and are in the process of a site specific study. In the Little Rock and Big Rock Creek area, there is a possibility that some type of a surface spreading facility could be built off the main water course. The intent would be to leave these areas in their natural state by allowing the water to percolate through a soft bottom type system, similar to what has been done along the San Gabriel River in Los Angeles. The Los Angeles County Department of Public Works has proposed groundwater recharge preserves for the Antelope Valley to enhance the groundwater recharge capabilities in the Valley. Such preserves would be strategically located within and at the mouths of the large canyons and in other locations on the Valley floor that appear to be capable of recharging the groundwater basin.

Based on recent trends of declining recharge activity, the present five-year California drought, and increasing overdrafting of the groundwater basin, it can be assumed that groundwater levels for the entire basin will continue to decline. The Los Angeles County Waterworks District 4 has indicated that data pertaining to the recharge of the Lancaster sub-basin is unavailable. Thus, no firm figures regarding long-term groundwater supplies specifically for Lancaster are available.

c. Major Water Import and Distribution Systems

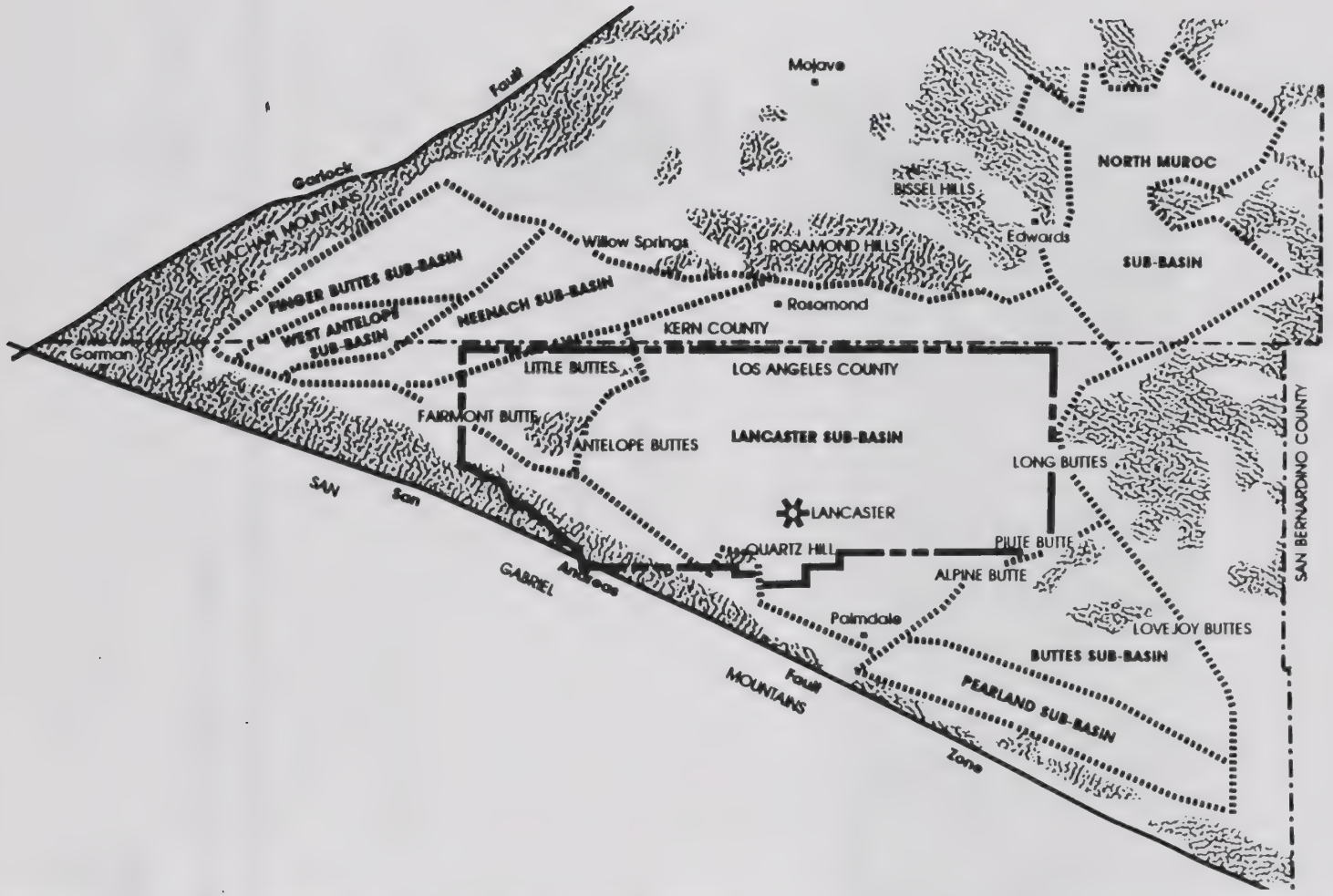
To supplement groundwater resources, in 1959 the Antelope Valley-East Kern Water Agency (AVEK) was created as a regional water district to obtain imported water from the State Water Project. AVEK acts as a water wholesaler, selling imported water to public and private water retailers.

One of the major purveyors in the area is the Los Angeles County Water District 4. Governed by the County Board of Supervisors, it is responsible for providing water to its designated service areas. Its sources of water include wells and State Project water purchased through AVEK.

The other major water retailer in Lancaster is the Quartz Hill Community Water District, a public water district governed by its own Board of Directors. It receives water from Water District 4, its own wells, and AVEK.

As discussed previously, the two sources of water for the Antelope Valley area are local groundwater and State Water imported via the California Aqueduct. The State Water is taken from the aqueduct and is treated by AVEK at the Quartz Hill Water Treatment Plant. In 1985, the amount of water furnished to Water District 4 from AVEK was 7,898 acre-feet. The amount of water used in the 1988-1989 (fiscal year) was 26,500 acre-feet for Water District 4, comprised of 50 percent groundwater from their own wells and 50 percent AVEK water. The City of Palmdale currently receives 80 percent of their water supply from groundwater because they contracted for less water from the State Water Project. This situation could accelerate groundwater decline, as there is no joint agreement between the cities concerning the maximum amount of water that can be withdrawn from the water table.

FIGURE II A 1



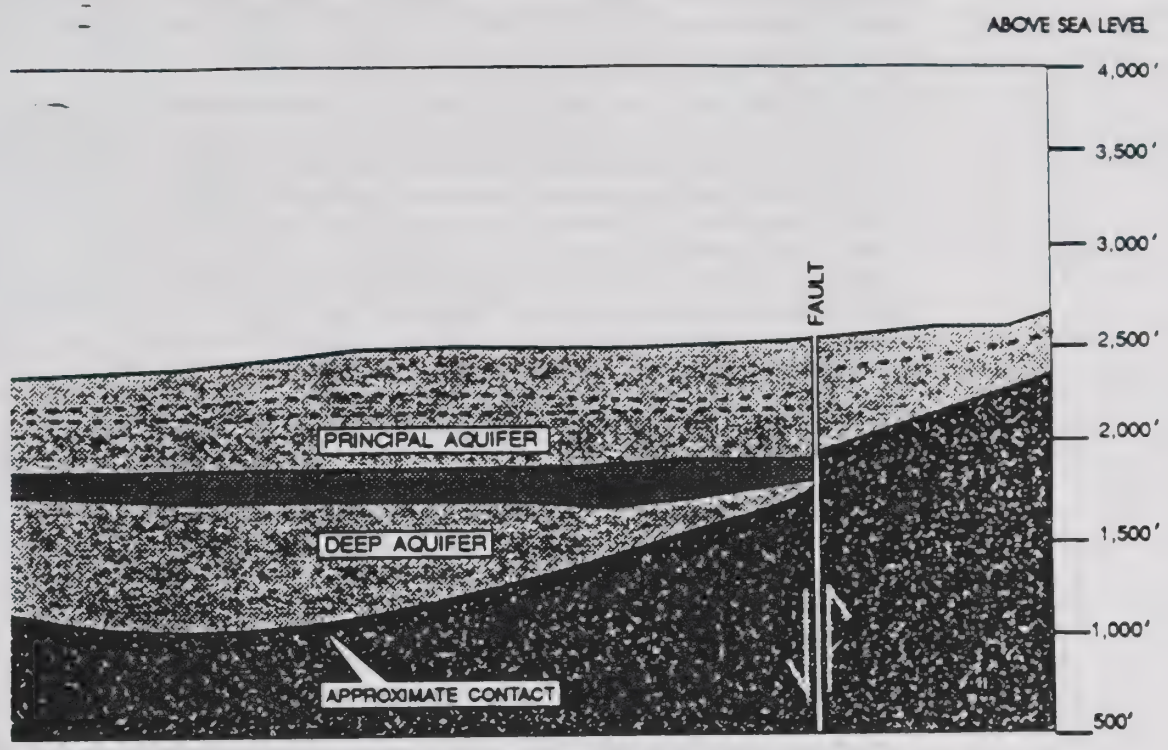
ANTELOPE VALLEY SUB-BASIN

PLANNING NETWORK

- UNCONSOLIDATED DEPOSITS
- CONSOLIDATED ROCKS
- MAJOR FAULT
- STUDY AREA BOUNDARY

SOURCE: Department of Water Resources, Southern District, 1980

CITY OF LANCASTER
GENERAL PLAN



SOURCE: GEOLOGY MODIFIED FROM BLOYD (1967) AND DUBSIN (1978)
LACUSTRINE DEPOSITS SHOWN DIAGRAMATICALLY

KEY:

- UNCONSOLIDATED DEPOSITS
- LACUSTRINE DEPOSITS
- CONSOLIDATED ROCKS

LANCASTER SUB-BASIN AQUIFERS

d. Groundwater Trends and Quality

Heavy reliance on groundwater supply is characteristic of many Southern California areas. In the Antelope Valley, this reliance has resulted in marked declines in groundwater levels.

Since 1990, when the initial steps were taken toward the full development of irrigated agriculture, groundwater levels have consistently declined, especially in the heavy agricultural pumping area centered around Lancaster, where as much as a 200 foot decline was noted by the Department of Water Resources in 1980 (see Figure II-A-3). Between 1964 and 1982, water levels declined 50 to 100 feet in the northwest section of the Lancaster sub-basin, 75 feet in the northeast, and 25 to 50 feet in the central area (USGS, 1987). The declines were caused primarily by agricultural, but also by urban and industrial water use. The depth of water varies widely in the sub-basin, but, in general, is greatest in the south and west. Since 1980, agricultural use has declined in the Antelope Valley.

Most of the Mojave Basin groundwater is suitable for irrigation, domestic use, and most industrial uses. Water from the principal aquifer, the main source of groundwater, has dissolved solids concentrations of 200 to 800 milligrams per liter (mg/l). In 1980, the State of California Department of Water Resources stated that the groundwater in the Lancaster area is generally of good quality, with total dissolved solids concentrations less than 500 mg/l. In the Lancaster sub-basin, these solids are primarily calcium bicarbonate and sodium bicarbonate. The water in this aquifer is more alkaline in the eastern part of the basin. Water in the deep aquifer contains higher levels of sodium bicarbonate and has a total concentration of dissolved solids of about 220 mg/l, primarily from sodium bicarbonate. A sampling of wells by the State Department of Water Resources in 1980 found elevated nitrate concentrations around the orchards of Littlerock and Quartz Hill. This is most likely a result of irrigation return waters, which have leached fertilizer from the soil.

Though the overall water quality is acceptable, there have been recent occurrences which threaten groundwater quality. Fuel leaks, improper disposal practices at military bases, overdrafting of groundwater, runoff from landfills, and toxic discharges in the Rosamond area have all posed significant risks to the quality of the groundwater (City of Lancaster Engineer, 1990). At this time, however, the effects of these incidences are not considered a major problem in the Lancaster area.

According to the United States Geologic Survey (USGS), the potential contamination sources in the Antelope Valley are agricultural land uses, sewage disposal sites, mining operations, and golf courses. Golf courses are considered because they may be irrigated by sewage effluents, in addition to the high levels of nitrogen fertilizers that are applied frequently.

Groundwater quality throughout the Antelope Valley is expected to decline because of increased urban runoff, septic tank failures, and the declining level of the water table in the Lancaster area. An increase in urban population will increase the need for disposal of industrial and domestic sewage, which could negatively affect groundwater.

e. Groundwater Flow and Recharge

Groundwater flows from the Tehachapi and San Gabriel Mountains toward the north-central portion of the Lancaster sub-basin, generally paralleling the surface drainage. Before the widespread pumping of groundwater, the hydraulic grade line of the principal aquifer was near ground surface in the north-central Lancaster sub-basin. Early developments in irrigated agriculture near Lancaster drew their water from flowing artesian wells. The water table, which was then shallow, permitted capillary action to lift water to the surface with direct evapo-transpiration of groundwater. Continued pumping lowered the water table, terminating this direct groundwater discharge.

Along the western border of the confining bed near Little Buttes, part of the subsurface flows from the Neenach, West Antelope, and Finger Buttes sub-basins flow into the Lancaster sub-basin principal aquifer. The other part of the subsurface flow recharges the deep aquifer. Groundwater from the Buttes and Pearland sub-basins enters only the principal aquifer of the Lancaster sub-basin. In portions of the north Muroc sub-basin, underlying and south of Rogers Lake, water movement is also toward the Lancaster sub-basin. Before the 1940's, the direction of flow was the reverse, however, by 1961, present flow patterns were entrenched due to the heavy pumpage for agricultural uses in the Lancaster sub-basin.

Information is incomplete on the degree of interconnection between the principal and deep aquifers. Through various studies, the USGS has inferred that leakage is downward from the principal to the deep aquifer along the southern and western periphery of the clay layer. In the area north of the City of Lancaster, the flow is upward from the deep aquifer to the principal aquifer and is concentrated in the areas of heavy pumpage.

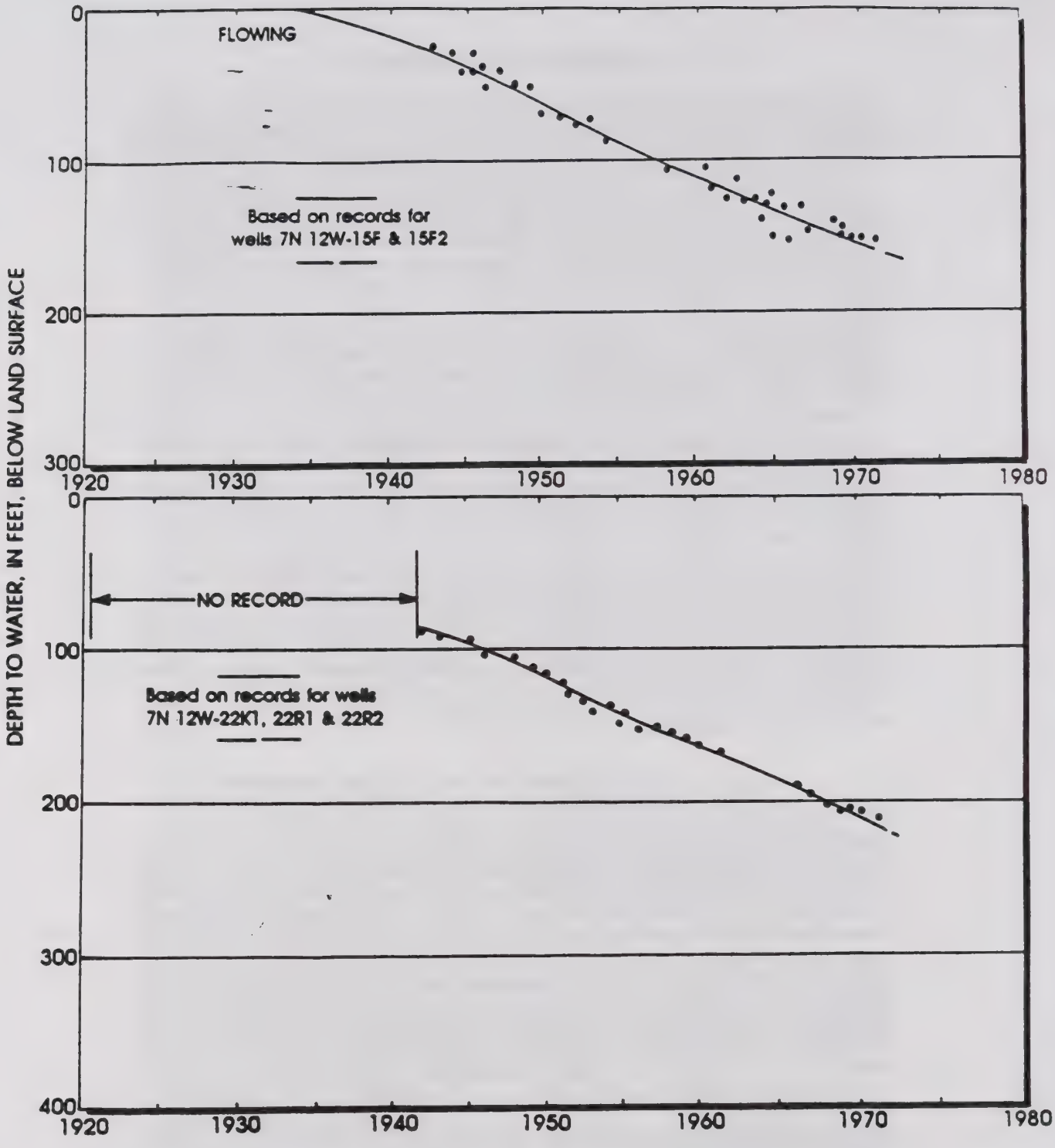
2. ANALYSIS

a. Availability of Water and Resource Development Programs

Being a desert area, Lancaster presently consumes considerable quantities of water. According to the local water agencies, water use in Lancaster presently varies from peak usage of 1,600 gallons per dwelling unit per day in the summer to 600 gallons per dwelling unit per day in the winter. This equals an average daily consumption of 1,100 gallons per unit, or an annual consumption of 1.2 acre-feet per year (AF/year). Based on the present household composition of 2.65 persons per unit (Department of Finance), this usage equals 415 gallons per person per day, or 0.5 AF per person per year. This is over twice the average consumption of 200 gallons per dwelling unit per day typically found in the more temperate areas of Southern California (Chino Basin Municipal Water District Master Plan, 1987). These general consumption figures also factor in non-residential uses (commercial/industrial), as well as existing agricultural uses.

Since the Lancaster area is predicted to experience considerable growth, domestic water consumption is also expected to increase significantly. By the year 2010, the Southern California Association of Governments (SCAG) projects the City to have a population of 234,228 residents with 104,614 dwelling units and 2.2 persons per unit, while the study area is expected to grow to over 295,868 residents. Based on these projections, the City will eventually consume on average 117 million gallons of water per day, or 298 acre-feet per day. Given the present heavy reliance on local groundwater and resulting in the overdrafting of the local groundwater basin, the local water agencies will have to secure

FIGURE II-A-3



WATER LEVEL DECLINE IN ANTELOPE VALLEY WELLS

PLANNING NETWORK

CITY OF LANCASTER
GENERAL PLAN

SOURCE: DEPARTMENT OF WATER RESOURCES.

additional sources of imported water or significantly increase groundwater recharge to support continued growth.

AVEK has predicted that water will be available to support a total population of 532,000 in the Antelope Valley (see Table II-A-1). This situation depends on safe yields of groundwater and full entitlement from the State Water Project. Recently, drought has caused these entitlements to be cut.

Although groundwater is still available to accommodate future development, in the event of drought or other crisis affecting the State Water Project supply, there may not be enough groundwater in the area to meet future demands. As previously mentioned, it is anticipated that state water entitlements will be cut because of the recent drought. Additional facilities would be needed for groundwater pumping and distribution throughout the City and its study area. Impacts associated with domestic water shortfalls could be reduced by making better use of current water supplies through water conservation and reclamation efforts, including pricing measures, water reuse/recycling, metering, leak detection and repair, pressure reduction, alternative development patterns, potential growth limitation or management, and water storage and exchange programs. It is crucial that the City examine the feasibility of implementing these programs.

The major source of groundwater recharge is infiltration inside and outside stream channels. Since there are no existing or proposed recharge facilities to adequately recharge groundwater to acceptable levels, the likelihood of present and continued overdrafting of the groundwater basin is increased. Therefore, the City must consider developing other sources of water. Potential water resources available to Lancaster and its study area include groundwater from the deep aquifer, providing for additional groundwater recharge, and additional AVEK imported water entitlements to State Project water.

The increased pumping of groundwater to provide additional water would entail drilling more wells, although this could exacerbate an already decreasing water table. The potential for further unmonitored extraction of water is possible due to the fact that water rights to the groundwater basin in the Antelope Valley have not been adjudicated. This means that the basin is open to whoever wants to drill a well and pump water.

As previously discussed, a principal aquifer and a deep aquifer lie below Lancaster. Currently groundwater is drafted from the principal aquifer and not the deep aquifer. The deep aquifer could be a potential source of additional groundwater. However, this again may cause additional problems for the existing overdrafted principal aquifer, as well as to create overdrafting possibilities in the deep aquifer. In addition, although there are some wells in the study area drawing water from the deep aquifer, it is uncertain whether most of the water from the deep aquifer is suitable for direct consumption.

Storm water runoff is another potential water source. It may be possible to detain and retain a considerable portion of the runoff that presently flows unimpeded across the basin in new reservoirs. Currently the major source of recharge to groundwater is surface water runoff from the surrounding San Gabriel and Tehachapi Mountains. Creeks in the San Gabriel Mountains include Little Rock, Big Rock, Amargosa, and several smaller ones. Creeks in the Tehachapi Mountains include Oak, Cottonwood, and other small creeks. Through the construction of holding basins, this storm water runoff could help recharge the groundwater basin and thus provide a significant source of "additional" water, although it is unknown how much additional water could be provided.

Table II-A-1
Antelope Valley-East Kern Water Balance

Safe Yield Antelope Valley Basin	58,000 AF
Safe Yield Fremont Basin	18,000 AF
Safe Yield Acton and Lake Hughes	2,000 AF
Available Groundwater	78,000 AF
State Water Project Entitlements[1] (Palmdale, Littlerock, AVEK)	158,000 AF
TOTAL POTENTIAL AVAILABLE SUPPLY	**236,000 AF**
Present Groundwater Production	50,000 AF
Present SWP Delivery	53,000 AF
Total Existing Demand[2]	103,000 AF
Available Supply for New Demand For Antelope Valley	133,000 AF
Equivalent New Population[3]	532,000
Equivalent Dwelling Units[2]	152,000

Source: AVEK, 1990

1 Full entitlement is dependent on completion of the State Water Project, AVEK transmission and distribution capacity, treatment plant capacity, and the amount of water available in any year. Total entitlement available 70 percent of the time, subject to cutback of up to 40 percent in years of drought.

2 Includes 25,000 AF for irrigated agriculture which could be replaced by additional 28,600 dwelling units.

3 Equivalent new population determined by adding 28,600 to the Equivalent Dwelling Units and multiplying by 2.9 persons per household.

It should be noted that retention of storm flows will also eliminate downstream deposition of silts on the local dry lake beds. At Rosamond Lake, in particular, this situation has already started to occur as development has changed historic runoff patterns. It will be critical for the City to carefully study the pros and cons of a major storm water recharge program jointly with Edwards Air Force Base before initiating such a program, because the process of siltation is essential for maintaining the surface integrity of the dry lakes, since some are used for military flight test purposes.

Additional water is available by utilizing AVEK's unused portion of its State Water allotment. AVEK's present entitlement amount will increase annually from 46,000 acre-feet in 1988 to an ultimate amount of 138,400 acre-feet in 1991 and beyond. However, AVEK's present entitlement is only 50 percent of its present allotted amount, or about 69,200 acre feet. Full entitlement is dependent on completion of the State Water Project, AVEK transmission and distribution capacity, treatment plant capacity, and the amount of water available in any year.

AVEK could also provide additional water to Waterworks District 4 by expanding or reallocating the capacity of its water treatment facilities. AVEK is presently in the process of expanding its Quartz Hill Water Treatment Plant from its current capacity of 28 mgd to 56 mgd. AVEK could also provide additional water from its Rosamond Water Treatment Plant, located north of Lancaster, which has a current excess capacity of 8 mgd. This excess capacity could be used to meet additional demands in Water Works District 4, however, since the Community of Rosamond is experiencing rapid growth as well, it is unlikely that this facility will be available for the treatment of water for Lancaster (AVEK, 1990). AVEK must determine if additional untreated water supply is available to justify expansion of the plants. Therefore, the State Water Project would need to be completed before AVEK could increase its entitlement and fully utilize its allotted amount of imported water.

b. Potential for Future Effects on Water Quality

Future development within Lancaster and its study area will result in long-term changes in the quality of runoff and groundwater. Since some local runoff presently percolates into the groundwater basin, it is assumed that runoff quality will affect groundwater quality. The pollutants normally associated with agricultural and rural uses (animal wastes and fertilizers) have, in many portions of the City, been reduced and replaced by pollutants associated with urban activities. These urban-related pollutants are expected to continue to increase.

The pollutants which might be found in runoff from urban areas are varied and originate from diverse sources. Sediments originate from eroded lands and street surface degradation. Automobile use within Lancaster and its study area will be responsible for the deposition of such pollutants as lead from exhaust emissions, asbestos from brake linings, and antifreeze, oil, and grease that accumulate on streets and parking surfaces. Chlorinated hydrocarbons, nitrogen, and phosphorous could possibly accumulate in this runoff from pesticide and fertilizer use on landscaped areas. The contaminants which are commonly associated with urban and industrial areas are identified in Table II-A-2.

The primary method of reducing the discharge of contaminants in urban runoff is the establishment and maintenance of street sweeping services. The need for such services is essentially a tradeoff between the expected seriousness of urban pollutants in runoff waters and cost. Although an increase in contaminants associated with urban runoff can be expected to result from future urban development, significant impacts are not expected in the near future. However, the increase in pollution from future developments, coupled with the declining water table, creates the increased possibility of future water pollution problems.

In response to water quality problems related to storm water runoff, the Environmental Protection Agency (EPA) was ordered by a federal court to promulgate regulations requiring discharge permits for storm water runoff. All storm water discharges must be categorized into two groups for purposes of applying for a discharge permit. Group I discharges are considered the most serious pollutants, and require extensive permit applications with flow estimates and analyses quantifying the presence of pollutants. Group II are considered less serious pollutants and require much simpler permit applications.
It should be noted that under present permitting requirements, the City of Lancaster is responsible for all discharge into the storm water system. Thus, the City is responsible for the entire cost of accumulating the necessary information for submitting a permit application.

Table II-A-2
Contaminants Associated With Urban Runoff

Constituent	Typical Sources	Impact
Contaminant		
Sediment	Construction activity, street deterioration, litter, natural erosion, vegetation.	Cause filling of surface waters, and can cause oxygen depletion.
Nitrogen	Fertilizers, exhaust emissions aerial fallout, organic materials.	Acts as a nutrient to aquatic plants, linked to infant blood diseases in moderate concentrations.
Phosphorus	Fertilizers, organic materials.	Acts as a nutrient to aquatic plants, can cause illness in man.
Sodium & Chlorides	Soil minerals.	Inhibits plant growth, impairs taste of water.
Heavy Metals		
Cadmium	Pesticides, industrial processes, mining wastes.	Toxic to man, animals, and aquatics; accumulates in the food chain.
Chromium	Industrial processes.	Toxic to plants and aquatics.
Copper	Industrial processes, algae control.	Impairs taste of water, toxic to certain aquatics, causes illness to humans in large concentrations.
Lead	Industrial processes, automobile exhaust emissions, aerial fallout.	Cumulative and toxic to man and animals.
Mercury	Industrial processes.	Toxic to man and animals.
Nickel	Industrial processes.	Toxic to citrus plants and some aquatics.
Silver	Industrial processes.	Toxic to aquatics.
Zinc	Industrial processes.	Toxic to plants and aquatics.
Other		
Oil & Grease	Parking areas, streets, unimproved roads, industrial processes.	Produces tastes and odors, toxic to aquatics in sufficient quantities.
Asbestos	Automobile brake linings.	Suspected carcinogen.
Arsenic	Industrial processes.	Toxic to humans in sufficient concentrations, cumulative in human system, inhibits plant growth, toxic to some animals.
Chlorinated Hydrocarbons	Pesticides.	Toxic to certain animals, can be cumulative in food chain.
PCB's	Electrical industries, transformers.	Suspected carcinogen.
Antifreeze	Automobile cooling systems.	Suspected carcinogen.

Source: Environmental Protection Agency

c. Maintenance of Groundwater Quality

The California Water Resources Control Board, through the nine Regional Water Quality Control Boards, is presently conducting state-wide water quality assessments of major water bodies. The purpose of these assessments is to satisfy requirements of the Clean Water Act, which requires periodic reporting to the Environmental Protection Agency (EPA) on the quality of selected waters. Secondly, the assessment prioritizes water bodies for future action under the State's Clean Water Strategy Plan. The intent of this plan is to identify high priority water bodies statewide. High priority water bodies can include those requiring protection as well as those requiring remedial action.

The City and its study area are within the jurisdiction of the Lahontan Regional Water Quality Control Board. The Lahontan Region's Draft Water Quality Assessments Plan evaluated a list of about 700 surface and groundwater bodies for the presence and extent of water quality problems, including the groundwater basins for the Antelope Valley area. The Plan indicated that the groundwater quality for the affected basins in the Lancaster area is "outstanding" and has no immediate plans for improving the groundwater quality for the area.

Future developments would need to comply with appropriate plans and policies of the water quality board and the following protection programs designed to protect groundwater quality:

- Well Drilling Standards: Los Angeles County and State guidelines for the safe and correct procedure for water well construction.
- Underground Storage Tanks: County and State regulations for placement, construction, and maintenance of all underground storage tanks.
- Septic Tank/Soil Leaching Systems: City of Lancaster and County standards for construction, placement, and use of septic tanks and soil leaching systems. Septic tanks allowed only where necessary and in areas with appropriate soils.
- Sewers: Los Angeles County Sanitation District guidelines and requirements for sewer lines.
- Current Investigation of Groundwater at Military Bases: County and federal monitoring of groundwater on and adjacent to military bases due to handling of hazardous materials associated with past military operations.
- Sanitary Landfills: County guidelines, standards, and monitoring of wastes entering all county landfills. For hazardous waste disposal, extra guidelines apply through national, state and local governments.
- Water Reclamation/Sewer Treatment: State Health Department, Regional Water Quality Board, and federal guidelines all monitor the treatment of sewage, water reclamation, and disposal or use of treated water and sewage product.

d. Implications of Private Well Drilling

Future private well drilling will temporarily provide additional domestic water for future developments, especially if water from the deep aquifer is potable and economical to obtain. However, each drilling will further reduce the already low levels of groundwater. As previously discussed, more groundwater is presently being pumped than is being recharged. Therefore, the groundwater basin is being overdrafted, which, in turn, reduces the viability of long-term well use. Well drilling may also affect regional groundwater quality by the introduction of urban pollutants into the groundwater.

Another implication of private well drilling is potential subsidence due to a dropping water table. The U.S. Geological Survey began monitoring Roger Dry Lake, which has experienced a 3 1/2 foot drop in the south end of the lake bed since 1967. Preliminary data collected by the USGS during 1990 indicate that the cracking and sinking of the lake bed is due to overdraft of the aquifer.

During aerial geologic reconnaissance by an engineering consultant in December 1990, over 70 large cracks were charted in a 10-square mile area of undeveloped land in Lancaster. Dozens more have been found on the dry lake bed at nearby Edwards Air Force Base, one-half mile long, up to 12 feet deep and 4 feet wide, forcing the closure of a runway. After rains in late February 1991, another large fissure breached the end of a second runway, although it has remained open. At several locations, sink holes, which are collapsed portions of subterranean cavities, were also associated with the fissures (Geolabs-Westlake Village 1990). Of particular concern are the reported cracks on the future High Desert Hospital complex site. Other fissures are located near the site where the State has begun building the new prison. The report to the City indicated that "since the fissuring poses a significant constraint and potential hazard to land development in the vicinity, the full extent should be evaluated." Fissuring identified in the report is illustrated on Figure II-D-4.

Geologists believe that the fissuring is the result of excessive pumping of groundwater for residents and crops in recent decades. It is believed that when water is drawn out of the earth hundreds of feet below ground, the soil begins to dry and grow more compact. Because those dry layers take up less space, gravity causes the soils above to settle, resulting in subsidence and fissuring at the surface. One way to reduce the subsidence and fissuring is to reduce the groundwater withdrawal and overdrafting of the aquifer in the region. However, local water agencies have been attempting to increase groundwater pumping, not to limit it, to make up for expected cutbacks in state water deliveries caused by the current drought. The halting of groundwater pumping is clearly not a viable alternative for the City at present, but may be necessary in the future (Geolabs-Westlake Village, 1990).

There are many older lots in the City on which wells could be drilled with no additional approval. Therefore, it is possible that such wells could have a measurable impact on local water quality, depending on their eventual number, location, and use. If private wells are drilled in the future, the developer could be required to comply with appropriate city standards, including minimum parcel size, building requirements, etc. The City could also regulate private well drilling through land use approvals. For example, the City could require water hook-ups on parcels smaller than 5 acres, where water lines are available.

Presently, the City of Lancaster has no control over water in the area, and therefore, Lancaster cannot set regulations limiting drilling or extraction. To establish control over the groundwater and to ensure that there is sufficient water for future growth, the City may want to pursue adjudication. Through this process the groundwater is divided and allocated to several established users. The quantity and quality is monitored by the regulatory agency, established by the adjudication process. Not only would this mitigate the problem of overdraft by private wells, but it would also ensure that other agencies did not withdraw excessive water from the water table that might impact continued growth in Lancaster.

B. AIR RESOURCES

1. EXISTING SETTING

a. Climate

The Antelope Valley occupies the western portion of the Southeast Desert Air Basin (SEDAB), and is adjacent to the South Coast Air Basin (SOCAB). Figure II-B-1 shows the relationship of the study area to these two air basins. This portion of the Southeast Desert Air Basin does not receive the moisture-laden ocean breezes found in the South Coast Air Basin to the west. Warm, moist air from Pacific Ocean storms is lifted upward by the San Gabriel Mountains and Sierra Paloma, causing heavier precipitation in the Los Angeles basin. Due to this orographic uplifting, the air that reaches this portion of the High (Mojave) Desert contains significantly less moisture, which results in less precipitation and greater temperature variation throughout the year.

Seasonal temperatures vary greatly in the desert. Summers are relatively hot, while winters are cold. Average rainfall is low, with an occasional thunderstorm occurring primarily in the summer months. The larger storms occur from late fall to spring (November to March). The temperature extremes in Lancaster range from approximately 2 to 117 degrees Fahrenheit (°F), with an average temperature of 62°F. Precipitation varies from four to nine inches annually, depending on the distance from the mountains. Relative humidity is usually low during the day (less than 10 percent) but increases slightly to about 22 percent after sunset. Spring and fall display milder temperatures with infrequent storms or thundershowers.

b. Winds

The prevailing wind patterns largely determine the overall movement of air into, within, and out of the Lancaster area. According to recent wind observations at Edwards Air Force Base, the prevailing winds occurred from the west, west-southwest, and southwest sectors. A significant portion of the prevailing winds in Lancaster area are due to the phenomena known as the "orographic effect." The air is forced over the mountain range and loses moisture as it rises. When it descends, it also compresses and heats up. The speed of the wind is aided by the "desert heat lows", which routinely form over the eastern Mojave Desert area. Although a portion of Lancaster's winds come from the Los Angeles Basin via the canyons, the vast majority of the winds are a result of the orographic effect and the desert heat low pressure systems.

However, during the fall months, this regional wind pattern will reverse, causing warm, dry air to blow into the Los Angeles basin from the desert. These "Santa Ana" winds are usually light and variable in the desert areas, but can cause severe damage after they accelerate through the mountain passes and enter the coastal basins. Originating in the eastern Mojave desert and occasionally from inland high pressure systems, these winds blow along the San Bernardino and San Gabriel mountains in a southwesterly pattern into the Los Angeles basin.

While prevailing winds are usually sufficient to dissipate locally produced air pollution, they often transport air pollutants into the desert basin from the Los Angeles basin and San Joaquin Valley. High surface temperatures during daylight hours induce vertical mixing, which also aids in diluting emissions generated in the nearby desert air basin. However, the air pollutants that remain can have varying effects upon human health and behavior.

Occasional high winds in the area blow air pollutants out of the area, but also blow significant amounts of dust across the Valley, inhibiting visibility. This reduced visibility has a detrimental affect on monitoring test flights at Edwards Air Force Base and is discussed in greater detail in the Physical Mobility chapter of this report.

c. Air Pollutants

The most significant air pollutants affecting the Lancaster area are:

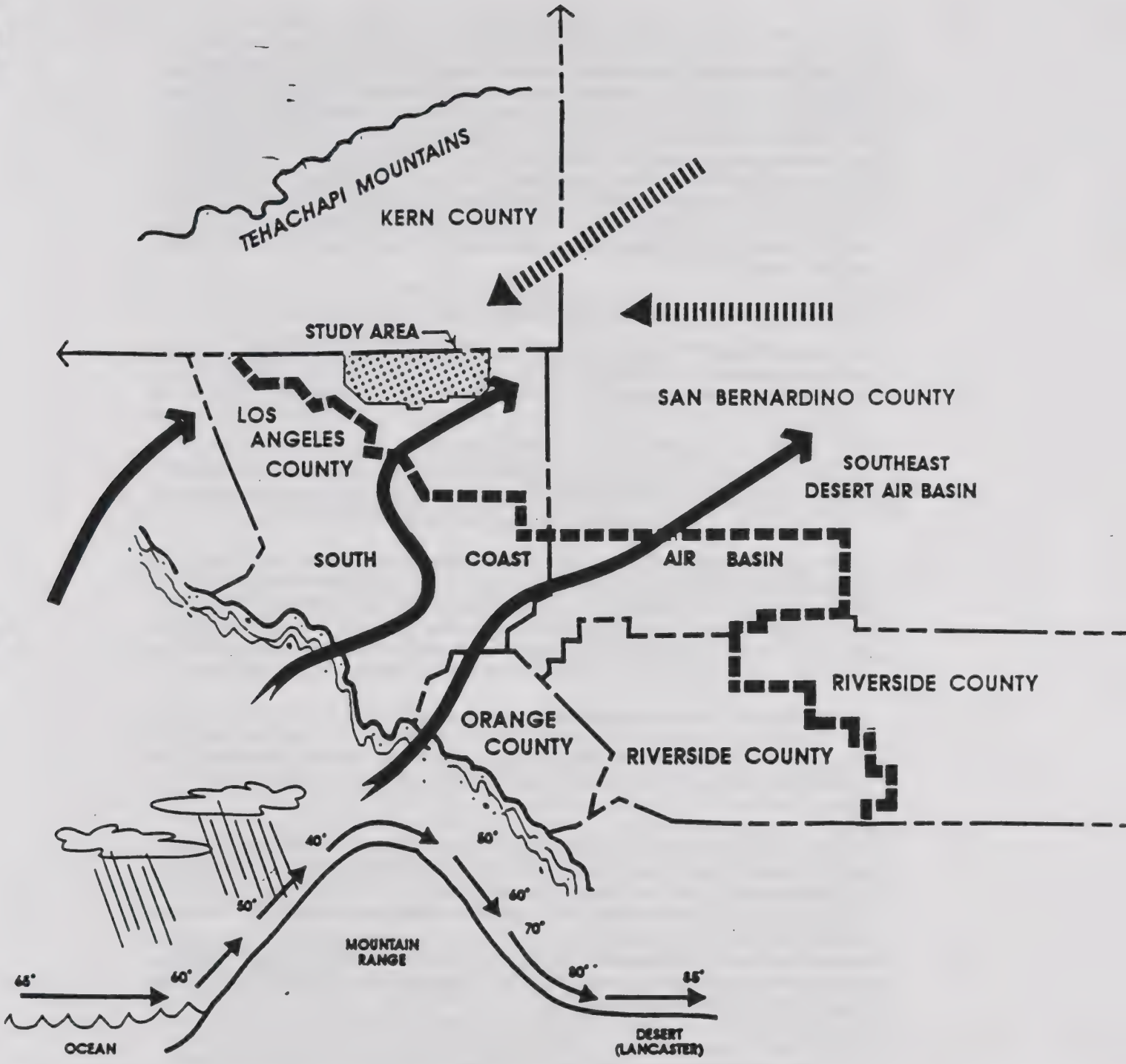
Ozone (O_3) The creation of ozone is a result of complex chemical reactions between hydrocarbons and oxides of nitrogen in the presence of sunlight. Unlike other pollutants, ozone is not emitted directly into the atmosphere from any sources. The major sources of ozone are oxides of nitrogen and hydrocarbons, known as ozone precursors, from combination sources such as factories, automobiles, and evaporation of solvents and fuels. The health effects of ozone are eye irritation and damage to lung tissues. Ozone also damages some materials such as rubber, and may damage plants and crops.

Carbon Monoxide (CO) This odorless, colorless gas is toxic to humans, and is produced by the incomplete combustion of fossil fuels in vehicular engines. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduction of lung capacity, and impairment of mental abilities.

Total Suspended Particulates (TSP) Suspended particulates are solid and liquid particles of dust, soot, aerosols, and other matter which are small enough, less than ten microns (PM_{10}), to remain suspended in the air for a long period of time. A portion of the total particulate matter in the air is due to natural sources, such as wind-blown dust and pollen. Manmade sources include combustion, automobiles, field burning, factories, and roads, especially unpaved roads. The effects of high concentrations on humans include aggravation of chronic diseases and heart/lung disease symptoms. Non-health effects include reduced visibility, soiling of surfaces, and crop damage (Air Quality Handbook, SCAQMD, 1987).

Sulfur Dioxide (SO_2) Sulfur dioxide is a colorless gas with a pungent, irritating odor. It is created by the combustion of sulfur-containing fuel, primarily from fossil fuel power plants and certain industrial plants. This substance is known to oxidize and become sulfur trioxide, which combines with moisture in the atmosphere to form a sulfuric acid mist. Sulfur dioxide damages and irritates lung tissue, and accelerates corrosion of materials (Air Quality Handbook, SCAQMD, 1987).

Oxides of Nitrogen (NO_x) There are a number of oxides of nitrogen, but only two are important in air pollution: nitric oxide (NO), a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure; and nitrogen dioxide (NO_2), a reddish-brown irritating gas formed by the combination of nitric oxide with oxygen. Combustion in motor vehicle engines, power plants, refineries, and other industrial operations are the primary sources. Oxides of nitrogen are direct participants in photochemical smog reactions. The health effects associated with this pollutant are increases in the incidence of chronic bronchitis and lung irritants (Air Quality Handbook, SCAQMD, 1987).



NOT TO SCALE

REGIONAL AIR MOVEMENT

PLANNING NETWORK

SANTA ANA WINDS

PREVAILING WINDS

CITY OF LANCASTER
GENERAL PLAN

d. Air Quality Standards

California air quality standards are generally more strict than corresponding federal standards. In addition to the federal standards, California has adopted episode criteria for oxidants, carbon monoxide, and sulfur dioxide. The episode levels are defined as short-term exposures at which public health is actually threatened. In the Lancaster area, ozone is the only pollutant monitored by SCAQMD that exceeds both state and federal standards. Table II-B-1 shows the present air quality of the area compared to current state and federal air pollutant health standards. Table II-B-2 shows the maximum one-hour concentrations of ozone, carbon monoxide, total suspended particulates, and nitrogen dioxide over the past ten years (1978-88).

e. Ambient Air Quality

The South Coast Air Quality Management District (SCAQMD) is the regional agency responsible for managing air quality in Los Angeles, Orange, Riverside, and San Bernardino Counties. SCAQMD maintains a station in the City of Lancaster that monitors levels of carbon monoxide (CO); ozone (O_3); nitrogen dioxide (NO_2); Suspended Particulates, both total and PM_{10} particles; and sulfates, as sulfate dioxide (SO_2). Measured levels of air pollutants are compared to state and federal standards, which have been adopted to minimize the risks for those segments of the population susceptible to respiratory distress.

In general, Lancaster and the high desert area enjoy good air quality with the exception of oxidants (ozone) and total suspended particulates (both TSP and PM_{10}). During 1988, oxidant levels (primarily ozone) exceeded the federal one-hour health standard on 44 days, while the more stringent state standard was exceeded on 105 days (over 28 percent of the year). However, maximum ozone levels have actually decreased slightly (from 0.29 in 1980 to 0.18 in 1988).

Most of the total suspended particulates in the desert are of natural origin, mainly as a result of blowing dust. Although there are no federal or state standards for total suspended particulates, maximum concentrations found in the area are of increasing concern to local aeronautic interests, especially Edwards Air Force Base.

Good air quality is essential for aeronautical operations in the Antelope Valley. Optical tracking devices and ground-mounted cameras used by military test flights at Edwards Air Force Base depend on clear air for their operation. Particulate matter (primarily TSP, but also PM_{10}), can severely restrict visibility. Nitrogen dioxide can cause a brownish haze, which also restricts visibility. Since visual acuity for tracking and observations is directly related to visibility, air pollutants that degrade visibility need to be minimized if Edwards Air Force Base is to continue the use of ground-mounted cameras.[1]

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[1] Edwards Air Force Base officials have stated strong support for the continued use of ground-mounted, as opposed to aerial, cameras. (Chief, Plans and Policies Division, 1990)

Fugitive dust is typically composed of chemically inert, large diameter particles that are readily filtered out by human breathing passages and, therefore, do not represent a significant health concern. Large dust particles typically settle to the earth near construction areas, unpaved roads, open fields, and agricultural operations, creating a temporary localized nuisance problem. However, the smaller fine-grained particles that are emitted are dispersed over greater distances, settling on parked cars and occasionally annoying adjacent receptors, especially during periods of high winds (see Sensitive Air Pollutant Receptors). Although larger particulates contribute to visibility problems in the study area, particles of less than 10 microns (PM_{10}) are considered more of a health threat, since they can penetrate the human respiratory system.

In 1989, the SCAQMD station in Lancaster began monitoring PM_{10} particulates. PM_{10} particle levels rose from a maximum 24-hour average of approximately 40 $\mu g/m^3$ (micrograms per cubic meter of air) in the first months of the year to over 100 $\mu g/m^3$ near the end of the year. According to the District Monitoring Section, particulates are expected to continue increasing and will eventually exceed federal standards.

Air monitoring data from the SCAQMD indicates that neither federal nor state standards for lead or sulfates were exceeded during the past ten years. This compares favorably to significantly higher levels found in the western part of the Los Angeles portion of the South Coast Air Basin.

Unfortunately, much of the regional air pollution in the desert is the result of pollutants blowing over the San Gabriel Mountains from the Los Angeles Basin. Prevailing winds typically move polluted air through mountain passes from mid-afternoon to late evening. Other air pollution sources include the San Joaquin Valley, automobile and truck traffic, as well as industries in the Antelope Valley (see Point Sources).

f. Air Quality Management Plan

The South Coast Air Quality Management Plan, adopted by the California Air Resources Board (CARB) in 1989, is the air quality management plan for any air basin within the SCAQMD that does not meet federal air pollutant standards. Such basins are called "non-attainment" areas for whatever pollutant exceeds federal standards. While the South Coast Air Basin is classified as a federal non-attainment area for several pollutants, the Southeast Desert, a subarea of the South Coast Air Basin, presently only exceeds federal standards for ozone. However, it is projected that standards for particulates will soon be exceeded.

According to the Implementation Department of the SCAQMD, both the policies and implementation strategies of the AQMP apply to the portion of the Southeast Desert Air Basin administered by the SCAQMD, including the Lancaster/Antelope Valley area. The AQMP establishes policies designed to meet and maintain federal and state ambient air standards. The SCAQMD outlines a strict air quality management plan with implementation measures to ensure attainment of the stated air quality goals.

Table II-B-1
Local Air Quality (1988)

Pollutant[1]	Standard		Days Exceeded	Maximum Concentration (PPM)
Carbon Monoxide	Federal			
>9.5 PPM		8 Hours	0	5.88
>3.5 PPM		1 Hour	0	11
	State			
>9.1 PPM		8 Hours	0	5.88
>2.0 PPM		1 Hour	0	11
Ozone	Federal			
>0.12 PPM		1 Hour	44	0.18
	State			
>0.10 PPM		1 Hour	105	0.18
Nitrogen Dioxide	State			
>0.25 PPM		1 Hour	0	0.09
Sulfur Dioxide	Federal			
>0.14 PPM		24 Hours	NM	NM
	State			
>0.05 PPM		24 Hours	NM	NM
Suspended Particulates (PM_{10})	Federal			
>150 $\mu g/m^3$			NM	NM
	State			
>50 $\mu g/m^3$			NM	NM
Lead (1)	Federal			
Particulates (TSP)				
NM			NM	257
	State			
NM			NM	257
Sulfate	State			
>25 $\mu g/m^3$			0	5.7

Source: "Air Quality Data Sheet," South Coast Air Quality Management District, 1988.

1 Measured during 1988 at the Lancaster monitoring station.

Notes:

NM = not measured
TSP = total suspended particulates
PPM = parts per million
$\mu g/m^3$ = micrograms per cubic meter of air

For Suspended Particulates, Lead, and Sulfate, data indicates number of samples (not days) which exceeded standard.

Table II-B-2
Annual Maximum One-Hour Pollutant Levels
(Measured at Lancaster Station)

Pollutant[1]	Symbol	1978	1980	1982	1984	1986	1988
Ozone	O_3	0.27	0.29	0.16	0.18	0.20	0.18
Carbon Monoxide	CO	15	11	10	10	9	11
Total Suspended Particulate	TSP	239	295	113	180	137	257
Nitrogen Dioxide	NO_2	0.18	0.09	0.14	0.11	0.09	0.09

Source: South Coast Air Quality Management District, Air Quality Data Sheets, 1978-1988.

1 Pollutants measured in parts per million (ppm) unless otherwise noted. TSP measured at $\mu g/m^3$ for 24 hours.

The AQMP implementation plan contains 140 control measures affecting most businesses, as well as individual behaviors, in the air basins. The transportation, land use, and energy conservation measures have been organized into 18 interrelated groups. Sixteen of these groups contain a total of 25 transportation measures; one group has one land use measure. The last group contains three energy conservation measures. Each measure is described in terms of three tiers of action.

Tier I contains:

- Actions to be taken in the first five years,
- Transportation improvements which can be built with funds available in the next 20 years.

Tier II contains:

- Actions to be taken from year 6 to 20,
- Actions dependent upon additional funding or new legislative authority.

Tier III contains:

- Actions tied to future technology.

Most of SCAG's measures fall into the first two tiers. Examples of these measures include the following:

TRIP REDUCTION (Transportation Demand Management -- TDM)

Alternative work week such as four days (ten hours), ten days on, two days off, etc. to reduce daily or peak-hour commuting.

Flextime to shift commuters to non-peak times such as 6am to 3pm, 7am to 4pm, 9am to 6pm, night shifts, etc.

Telecommuting: working at home with a computer-modem hook-up to the office to eliminate daily commuting (combines with alternative work week).

Work-at-Home: allowing employees to work one or more days per week at home, eliminate daily commuting.

Non-Work Trip Reduction: computerized home shopping, use of public transit, and balanced land uses to reduce shopping or other non-work trips.

Employer Ride-Share: employers setting up van pools, car pools, ride-sharing, etc. to minimize individual commuting (see the Transportation Management Section in Physical Mobility).

Transit Incentives: employers purchase, or are subsidized to purchase, bus passes for employees.

Parking Management: parking stalls could be assigned and/or limited, such as, have a space only four days per week, or providing special parking for car-pool drivers.

Merchant Transportation Incentives: businesses offering bus passes as employee awards, prices, etc.

Auto Use Restrictions: limiting drivers to four days per week or to car pool one week out of the month, etc.

PEAK-PERIOD TRUCK TRAVEL

Eliminate truck traffic and related emissions during peak hours and reduce idling emissions of remaining vehicles by improving traffic flow.

Re-route trucks away from central business districts and major activity centers during peak commuter hours.
Restriction of select heavy duty vehicle traffic to specific freeway/highway routes during AM and PM peak hours.

TRAFFIC FLOW IMPROVEMENTS

Adding right- or left-turn lanes, left- or right-turn only lanes, arrows, signal synchronization at congested intersections, etc. as a means of improving traffic flow and minimizing idling emissions.

Restrict parking along arterials during peak hours.

GROWTH MANAGEMENT

Achieve a balance between jobs and housing within individual subregional areas as a means of reducing distances between home, and work along with commute-related emissions.

Restricting the number, type, or location of building permits to control growth-related idling emissions by ensuring adequate traffic flow.

CLEAN FUELS IN FLEET VEHICLES

Electric, propane, or ethanol powered vehicles.

PARTICULATE EMISSIONS

Control of dust from paved or unpaved roads, parking lots, vacant (or fallow) agricultural land, and from grading activities.

EDUCATION

Institute air quality public awareness program.

ENERGY CONSERVATION

Reduction in regional pollutants produced through the generation of electricity, and local pollutants produced by the burning of natural gas.

LOCAL STREETS AND BICYCLE/PEDESTRIAN PROGRAMS

Reduction in vehicular pollutants by substituting walking and riding bicycles instead of driving trips.

The AQMP gives cities and counties the responsibility to adopt and monitor policies and strategies to implement the AQMP. This includes management of public activities, as well as private development (see Appendix IV-G, Chapter III, Air Quality). The AQMD will continue to be responsible for the permit approval procedures for individual pollutant generators (see Point Sources).

The AQMP is one of four comprehensive regional planning documents, including the following:

Regional Mobility Plan (RMP) This plan describes the traffic-related impacts of regional growth, based on population projections from the Southern California Association of Governments (SCAG), and proposes a regional plan to improve traffic flow. The plan includes programs for streets, highways, and public transit.

Regional Housing Needs Assessment (RHNA) This report assesses what amount and type of housing will be needed by individual cities and areas in Southern California, based on SCAG population and housing projections.

Growth Management Plan (GMP) This document incorporates the mobility goals of the RMP, the housing goals of the RHNA, and the air quality goals of the AQMP, into a comprehensive framework for municipal planning. A major thrust of the GMP is to achieve a jobs/housing balance within the various localities that make up Southern California.

Together, these documents outline a coordinated strategy for all cities in the SCAG region to meet specific SCAG and AQMD goals relative to growth, housing, and transportation by the year 2010. These documents also identify specific goals for sub-regions in terms of population, housing, and employment by the year 2010. Lancaster is part of the section of the North Los Angeles County Area, which includes Palmdale and the unincorporated areas of the Antelope Valley. This area has been given goals, as shown in Table II-B-3. The goals for Lancaster represent 52 percent of the AQMP population goal and 41 percent of the housing goal.

Table II-B-3 also describes the subregional AQMP growth goals for Lancaster. The AQMP indicates that the jobs/housing balance is predicted to remain less than 1.22 (0.72), not changing significantly from present levels.[1] Increased vehicle miles traveled and congestion result in higher emissions, putting additional strain on energy resources. The AQMP's projected population, housing, and employment projections for the Antelope Valley inherently assume that the number of commuters to jobs in the San Fernando Valley and the Los Angeles basin will increase proportionate to the Valley's population. This assumption is inconsistent with the jobs/housing balance provisions of the AQMP, and is counter to policies adopted by the cities of Lancaster and Palmdale and the County of Los Angeles.[2]

In addition to the problems associated with jobs/housing imbalance, there is the critical issue centered on the future uses of land. At both the neighborhood and city level, the dispersion of housing and commercial buildings, as well as the scale, pattern, and densities of these land uses, affect the quality of life for residents.

If projected growth rates are realized and the jobs/housing imbalance is maintained as AQMP predicts, an increased number of residents will continue commuting long distances, thereby further exacerbating the quality of air in the Antelope Valley.

g. Point Sources

The Lancaster General Plan study area contains several point (stationary) sources of air pollutants. A variety of pollutants, including reactive hydrocarbons from activities such as spray painting, are generated by smaller commercial and industrial uses. These pollutant sources will increase in number as the study area develops. While each use might not represent a significant source of air pollution, the cumulative effects of development of the entire study area will be significant. Table II-B-4 provides a listing of existing air pollutant point sources within the study area and the Antelope Valley that generate over five tons or more of air pollutants per year, according to current SCAQMD records. By comparison, a gasoline service station produces approximately three tons per year of pollutants.

Although the number and nature of future additional air pollutant point sources is presently unknown, each individual source will be required to comply with SCAQMD rules and regulations. These regulations require that sources of hazardous materials or criteria pollutants above threshold levels obtain permits prior to operation of the facility.

Agricultural processes also generate air pollutants and odors from such activities as: tillage for soil preparation, spraying of crops with pesticides, weed burning, dust from harvesting fruits and vegetables, and animal movement. Agricultural use of pesticides may produce air quality impacts at downwind sensitive receptor locations if the pesticides become airborne during windy conditions. Sensitive receptors downwind may also be subjected to airborne dust particles that are not readily filtered by the human respiratory system. Use of agricultural machinery, such as plows and tractors, results in fugitive dust that further contributes to the particulate problem in the study area.

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1 A ratio of 1.22 jobs per housing unit represents the theoretical regional balance between jobs and housing.

2 Recently SCAQMD shifted its emphasis for projecting impacts on air quality from jobs/housing to vehicle miles travelled.

Table II-B-3
Regional Growth (1984-2010)

	1984	1987-88	2010	Average Annual Growth	Total Change	Average Annual Percent Change
ANTELOPE VALLEY[1]					(1984-2010)	
Population	118,900	165,700	529,600	15,796	345.4%	13.3%
Housing	46,100	64,900	222,600	6,788	382.9%	14.7%
Employment	32,700	NA	160,800	4,927	391.7%	15.1%
Jobs/Housing Ratio	0.71	NA	0.72	0.73	1.8%	0.07%
LANCASTER[2]		1987			(1987-2010)	
Population	68,063	86,548	234,228	6,421	170.2%	7.4%
Housing	NA[3]	26,889	104,614	3,379	289.8%	12.6%
Employment	NA	23,240	62,529	1,708	170.2%	7.4%
Jobs/Housing Ratio	NA	0.86	0.60	0.51	-1.3%	-0.06%

Source: Regional Growth Management Plan, Southern California Association of Governments, 1989.

1 AQMP goals with 1988 actual. 1988 employment is SCAG estimate.

2 SCAG estimates based on 1987 actual using proportional distribution.

3 NA = data not available.

h. Sensitive Receptors

Certain segments of the population are especially sensitive to the detrimental health effects of air pollution. Sensitive receptors are those facilities most likely to be used by the sick, the elderly, and young children. For that reason, it is necessary to identify and protect these sensitive land uses from industries which emit toxic materials. Table II-B-5 presents the 57 sensitive air pollutant receptors (primarily schools and pre-schools) that are presently located within the study area, while Figure II-B-2 shows their location. At present, almost all of these sensitive receptors are within a three mile radius of downtown Lancaster, and are located near, or adjacent to, major roadways.

2. ANALYSIS

a. Construction Impacts

As the study area develops, construction activities will produce significant quantities of dust from clearing and grading, as well as additional mobile emissions from construction equipment, such as graders and bulldozers. These activities would contribute a large quantity of fugitive dust to the area, especially during periods of high winds. The U.S. Environmental Protection Agency (EPA)

Table II-B-4
Major Lancaster Air Pollutant Point Sources, 1989

Location	Controlled/ Uncontrolled[1]	ROG[2] Tons/Year	Methane	Freon Tons/Year	NOX[3] Tons/Year	SOX[4] Tons/Year	CO[5] Tons/Year	TSP[6] Tons/Year
Lancaster Community Hospital 43830 N. 16th Street West	Controlled							
	Uncontrolled				12		6	1
Union Oil Co. of California 44141 N. Yucca Avenue	Controlled							
	Uncontrolled	8						
Antelope Valley Hospital 1600 W. Avenue J.	Controlled							
	Uncontrolled	1			5		3	
Rockwell International Corp. 3000 E. Avenue M, Palmdale	Controlled	3			10			1
	Uncontrolled	5		1	10			1
Rockwell International Corp. 2825 E. Ave. D, Palmdale	Controlled			20				
	Uncontrolled			20				
Granite Construction Co. 7010 Avenue T, Palmdale	Controlled							
	Uncontrolled							6
Northrop Corporation 35th St. E. & Ave. M, Palmdale	Controlled	1			4	1	1	1
	Uncontrolled	17			11	1	123	1
Asphalt Construction Co. 7311 E. Ave. T., Palmdale	Controlled				4			
	Uncontrolled	7			60	4	48	4
Rexrite Stripping, Co. 2163 E. Ave. Q, Palmdale	Controlled	1		1	10			1
	Uncontrolled	1			1	1	1	1

Source: EFB Emission Inventory for Year 1989, SCAQMD, 1990.

1 Controlled sources have some form of emissions control and uncontrolled is the direct release of emissions.
2 Reactive Organic Gases
3 Oxides of Nitrogen
4 Sulfur Dioxide
5 Carbon Monoxide
6 Total Suspended Particulates

indicates that a typical site will generate approximately 110 pounds of dust per day, per cleared acre. Since good visibility is essential to the continued aeronautic testing at Edwards Air Force Base and Air Force Plant 42, soil protection measures and regulations will need to be implemented and enforced.

While construction activities will cause a temporary increase in dust production, long-term dust generation will be significantly reduced by covering over native soils with impervious surfaces. Therefore, development of the study area will eventually result in a long-term reduction in the amount of dust generated within the Antelope Valley. This short-term impact may be a trade-off for a long-term reduction in particulate air pollutants from agriculture and construction

Table II-B-5
Sensitive Air Pollutant Receptors

	Facilities[1]	Location
	Schools/Preschools	
(1)	A.V. Adventist School	45045 N. Date
(2)	A.V. Christian School	44600 N. 20th W
(3)	Alpha-Omega Nursery	827 E. Ave. J-10
(4)	Antelope Valley High School	44900 Division
(5)	Assistance League Nursery	44539 N. Fern
(6)	Bethel Christian Academy	3100 W. Ave. K
(7)	Children's Corner	345 W. Lancaster Blvd.
(8)	Del Sur Elementary	9023 W. Avenue H
(9)	Desert Christian School	44648 15th Street West
(10)	Desert View Elementary School	1555 W. Ave., H-10
(11)	Domenico Pre-School	45109 N. Date Ave.
(12)	Eastside Elementary	6742 E. Avenue H
(13)	El Dorado Elementary School	361 E. Pondera St.
(14)	El Dorado Preschool & Wee Folks	44501 N. 5th Street East
(15)	Grace Lutheran School	856 W. Newgrove
(16)	Headstart	1734 E. Ave., H-8
(17)	Hughes Elizabeth Lakes Elementary	16633 Elizabeth Lake Road
(18)	Jane Reynolds Park Preschool & Play Bridge	716 W. Oldfield
(19)	Joe Walker Middle School	5632 W. Avenue L-8
(20)	Joshua Elementary School	43926 N. 2nd St. East
(21)	Kiddie Kollege Pre-School	43926 N. 2nd St. J-8
(22)	Kinder Care	K & 22nd West
(23)	Kinder Care	44400 Foxton
(24)	Lancaster Christian School	44339 N. Beach Ave.
(25)	Lancaster Methodist Pre-School	918 W. Ave. J
(26)	Lancaster Parent Co-Op	506 West Ave. K
(27)	Lilliput Nursery School	646 E. Ave. K
(28)	Lincoln Elementary	1331 E. Avenue J-8
(29)	Linda Verde Elementary School	44924 N. 5th St. East
(30)	Mariposa Elementary School	737 W. Ave. H-6

Table II-B-5
Sensitive Air Pollutant Receptors
(Continued)

Facilities[1]		Location
(31)	Mariposa Park Preschool & Wee Folks	45755 N. Fig Avenue
(32)	Monte Vista Elementary School	1235 W. Kettering
(33)	Montessori Desert Academy	44503 N. Fern
(34)	Nancy Cory Elementary	3540 W. Avenue K-4
(35)	New Vista Elementary	831 E. Avenue K-2
(36)	Park View Intermediate	808 W. Avenue J
(37)	Pinecrest Elementary School	2110 W. Ave. K
(38)	Piute Intermediate	425 E. Avenue H-11
(39)	Quartz Hill High School	6040 W. Avenue L
(40)	Quartz Hill Elementary	41820 50th Street West
(41)	Sacred Heart School	45002 Date Ave.
(42)	Sierra Elementary School	747 W. Ave. J-12
(43)	Springs of Life Christian School	42640 N. 10th St. West
(44)	Strawberry Patch Pre-School	44835 N. Beach
(45)	Sunnydale Elementary School	1233 West Ave. J-8
(46)	Sunshine Factory Preschool	44514 20th St. West
(47)	Tierra Bonita Elementary	37th Street East & Ave. J
(48)	Valley View Elementary	3310 W. Avenue L-8
(49)	Wonder Years Preschool	45108 N. Beach
Hospitals/Convalescent Facilities		
(50)	Antelope Valley Behavioral Activity Center	1734 E. Ave. H-8
(51)	Antelope Valley Convalescent Hospital	44445 N. 15th St. West
(52)	Antelope Valley Hospital Medical Center	1600 West Ave. J
(53)	Antelope Valley Retirement Manor Inc.	44523 N. 15th St. West
(54)	Desert Haven/Association of Retarded Citizens	43437 Copeland Cr.
(55)	Lancaster Community Hospital	43830 10th Street West
(56)	Lancaster Convalescent Hospital	1642 West Ave. J
(57)	Los Angeles County High Desert Hospital	44900 N. 60th Street West
(58)	Mayflower Gardens Convalescent Hospital	6705 W. Ave. M
(59)	Mayflower Gardens Retirement Community	6570 W. Ave. M

[1] See Figure II-B-2 for locations

During construction, dust can be minimized by watering at least twice a day, paving dirt streets, and by implementing other dust prevention measures outlined as in the Air Quality Management District Rule Number 403. Regular watering of cleared areas can reduce dust by up to 50 percent. To reduce the impacts of watering in a drought area, reclaimed water can be used as discussed in the Water section of the Municipal Services chapter of this report. Use of chemical stabilizers on cleared portions of a site, which are not subject to vehicle traffic or other activity, can reduce dust generation by as much as 80 percent. In the past, water has been available for dust reduction. However, beginning April 1, 1991, this type of water use has been eliminated (Supervisor, Water Works District No. 4, 1990). Use of these products, in conjunction with careful phasing of grading operations, will significantly reduce the daily generation of dust as the area develops.

b. Vehicular Pollutants

Projected population increases in the study area will result in a corresponding increase in the number of automobiles and vehicular pollutants. The primary method of reducing pollutants that result either directly or indirectly from vehicular exhaust (including ozone), is to reduce both the number of vehicular trips and the miles travelled each day by local workers and residents. A large fraction of the remaining stationary pollutants (from electricity and gas consumption) can be reduced through energy conservation.

As housing becomes more expensive in the Los Angeles basin, areas of less expensive housing, such as the Antelope Valley, develop along the fringes and move outward from the urban areas to meet the demands for affordable shelter. However, until an adequate number and type of employment sources also relocate to these outlying areas, many residents are forced to commute long distances between work and home each day.

Although employment eventually follows the movement of its labor pool, this situation creates a long-term imbalance of residents to workers in outlying communities. This situation exacerbates local air pollution problems as longer work trips generate more vehicular exhaust. Not only must work related automobile trips be shortened, but shopping and other non-work related trips must be shortened or consolidated as well. To discourage these trips, land uses could encourage the location of jobs, housing, and shopping areas in such a way as to minimize extra automobile trips. Reductions in vehicular trips as well as vehicular miles can be accomplished over time through the application of wise, long-range planning of land uses that provide comprehensive support for residents and workers, such as shopping and employment.

Until an adequate amount and variety of retail and service establishments locate in this area, shoppers and those seeking services will be forced to also travel long distances to meet their needs. However, resident trips can be significantly reduced by encouraging mixed use projects that introduce a variety of uses, including sales, service, and jobs, in addition to new housing (see the Physical Development chapter of this report). One effective way for the City to achieve a better balance of jobs-to-housing is to encourage non-residential projects, especially those uses identified as major non-local attractors, such as a four-year university or new basic industries not currently located in the City. Other alternatives include fostering cottage industry and local entrepreneurship, and encouraging public education programs regarding alternatives to automobile travel.

The design of developments must carefully consider such factors as sidewalks, bus stops, bicycle racks, and streetlights to encourage pedestrian travel within developments. This can also apply to the land planning of projects.

c. Regional Growth Management (Jobs/Housing Balance)

According to the Regional Growth Management Plan published by the Southern California Association of Governments (SCAG), the North Los Angeles sub-region, is expected to grow to over half a million people by the year 2010. The annual growth rates projected for population (+13.3 percent) and housing (+14.7 percent) are just slightly lower than the growth expected for employment (+15.1 percent). The projected jobs-to-housing ratio is designed by the SCAG plan to be limited to approximately the same level as 1984 (0.72 versus 0.71). According to these figures, as long as the growth rate in employment keeps pace with the growth rate in housing, the Antelope Valley should be able to attain SCAG's regional growth management goals for the subregion[1] (see the Living Environment Chapter of this report). However, as previously discussed, this will not achieve a jobs/housing balance.

Although air quality is a regional problem, the Air Quality Management Plan places heavy reliance on local implementation measures, such as land use decisions and local employment transportation programs. The jobs/housing balance program in the Regional Growth Management Plan sets subregional performance goals from numbers generated from policies. The implementation process stresses the freedom of cities to choose attainment measures that best suit local conditions. The fact that areas of Southern California, particularly downtown Los Angeles, will continue to be job centers and will never be able to provide housing for the majority of people who work there will necessitate keeping residential areas, such as the Antelope Valley, as commuter cities. The City of Lancaster is not required to accept the policy that they will remain a commuter city inherent in the numbers that are projected by SCAG in the Regional Growth Management Plan. The City is only required to demonstrate that its programs and policies comply with the intent of SCAG's plan. It will be up to Lancaster to decide the jobs/housing balance that will be most beneficial to the implementation of its long-term goals. Policies introduced in the General Plan are consistent with SCAG's broader goals.

Within this sub-region, Lancaster and Palmdale are currently the primary job centers. Lancaster is considered "job poor" at present, with a jobs/housing ratio of less than 1.0. Therefore, the City may want to emphasize additional employment through the development of non-residential projects. Such a policy would conflict with the current AQMP goals for Lancaster, which applies the existing jobs/housing to future growth. The creation of additional employment centers would only slightly change the housing balance.

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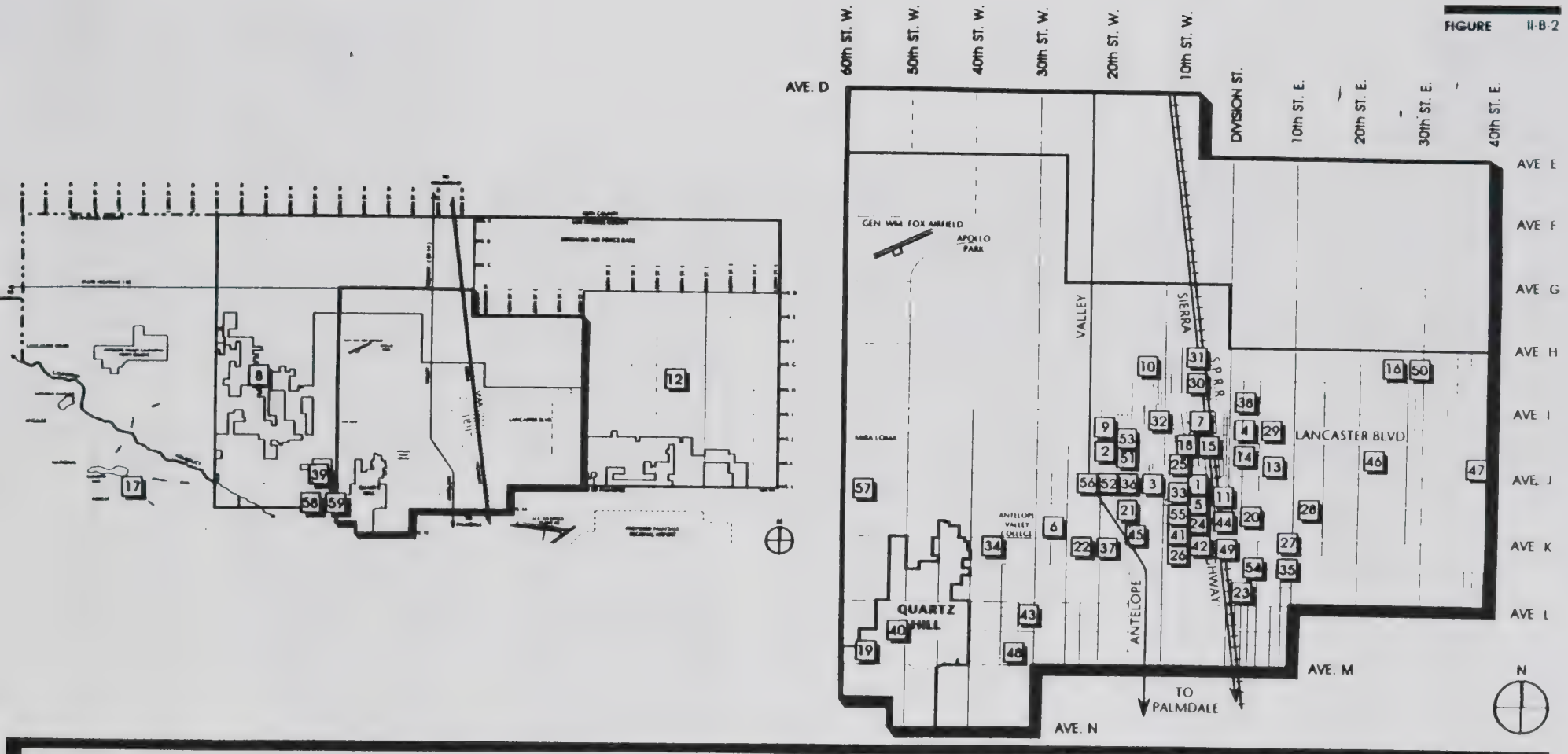
1 None of the figures from 1984 and 2010 include employment provided by Edwards Air Force Base. Edwards does not have 1984 employment numbers. The 0.99 is based on constant numbers from 1984 and continuing into 2010.

FIGURE II-B-2



SENSITIVE AIR POLLUTANT RECEPTORS

PLANNING NETWORK

RECEPTOR IDENTIFICATION
Refer to Table II-B-5 for facility listing.

SOURCE: Planning Network, 1990.

CITY OF LANCASTER
GENERAL PLAN

The AQMP[1] recommends that cities use the following land use strategies to help achieve regional jobs/housing balance (for "job-poor" areas):

- Increase the amount of planned future commercial and industrial development and/or reduce the amount of planned future residential development through general plan revisions and zoning ordinance amendments, and development incentives and conditions.

- Impose developer fees on housing projects to cover external costs associated with imbalanced development. These fees will help pay for regional transportation infrastructure, mitigate air pollution effects of imbalanced growth, increase economic development programs in "job-poor" subareas, and facilitate housing development in "job-rich" subareas.

- Encourage redevelopment projects.

- Use local police powers to provide for more balanced growth. By phasing or structuring capital improvement programs, the City can shape the pattern and timing of growth. By enacting ordinances, the City can also restrict growth as necessary. This will help maintain minimum levels of service provided by local infrastructure systems.

- Expand and improve infrastructure systems giving highest priority to projects that would promote job growth.

- Locate new major job-inducing public facilities, such as universities, airports, and government services and trade centers.

- Encourage Transportation Demand Management (TDM) programs to help reduce the number of automobiles on the road. While each program is unique, Transportation Demand Management measures all share a common goal of seeking to modify individual travel behavior to reduce peak period congestion. As structured, the measures encourage people to change their mode of travel, principally away from single occupant auto use, change their time-of-day of travel, or to eliminate trips altogether. Types of programs include alternative work weeks, flextime, rideshare programs, telecommunications, and at-home work schedules.

By using these planning guidelines, the City will help reduce long commutes, and thereby reduce regional air pollution. Decisions on ultimate land uses within the study area shall take into consideration the achievement of regional jobs/housing goals relative to the City's economy and housing market. For additional information on the implications of the projected jobs/housing situation, see the Economic Development section. Although this will result in fewer and shorter employment trips, such industries may cause pollution themselves. Existing land uses may be analyzed for conflicts between sensitive land uses (schools, day-care centers, hospitals, hospices, convalescent homes, senior citizen housing, parks, and recreation areas) and major sources of pollution.

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1 For additional information, see the growth management goals of the AQMP, and the Regional Growth Management Plan.

The increased vehicle miles traveled will result in additional air pollution emissions. Table II-B-6 shows air pollutant emissions per mile driven. Vehicular pollutants can be reduced by minimizing trips and miles traveled. New commercial, industrial, and eventually residential uses must meet the new SCAQMD guidelines regarding ride-sharing, car-pooling, and other air pollution reducing strategies.

Table II-B-6
Projected Mobile Source Emissions[1]

Source & Generation Factor	Pollutant					
	CO	NOx	SOx	Part.	ROG	THC
Grams Emitted Per Mile Traveled:	0.36	0.049	0.0084	0.011	–	0.036

Source: Air Quality Handbook for Environmental Impact Reports, South Coast Air Quality Management District, December 1987.

1 Emissions are for Year 2000.

C. BIOLOGICAL RESOURCES

1. EXISTING SETTING

a. Flora

The Antelope Valley is primarily a desert environment, with the Mojave Desert to the northeast, the Tehachapi Mountains to the northwest, and the foothills of the San Gabriel Mountains to the southwest. Due to their height and location, the San Gabriel and Tehachapi Mountains extract much of the available precipitation from weather systems before they reach the Antelope Valley, directly contributing to the area's arid conditions (Larson 1987). The General Plan study area is part of the southwestern-most sub-basin of the Mojave Desert, and the desert influence provides the dominant climatic and physical constraints of the region. The southern portion of the study area also contains transmontane elements. The presence of the San Gabriel foothills to the south contributes a variety of inland and montane influences. The study area contains eight native plant communities or associations (six major desert types and two minor montane types). These plant assemblages are most often defined by the dominant or most prevalent species (Holland 1986).

The study area supports three main types of *Desert Scrub* (alkali, creosote, and shadscale), depending on which species is dominant. In addition, low-lying areas of desert scrub that collect runoff can support unique assemblages of native plants; these areas are called *Alkali Sinks*.

Seasonal drainage courses through desert scrub communities, mainly in the southwestern and southeastern portions of the study area, often support *Desert Wash* plant communities. In addition to scrub plants, these associations contain opportunistic species that take advantage of temporary flooding during wet years.

Desert Woodlands are also present, depending on the dominant type of tree present (California juniper and Joshua tree). The City of Lancaster has also designated certain areas as "Prime Desert Woodland." This designation is not a botanical term, but refers to areas of desert woodland that are unusually diverse, contain unique species, or have high concentrations of juniper or Joshua trees.

Along the southwestern border of the study area lie the foothills of the San Gabriel mountains. A few north-facing hillsides contain scattered areas of *Upland Scrub* vegetation, as well as limited *Riparian* growth. Several seasonal water sources, primarily man-made or the result of urban runoff, in and around Lancaster also support limited riparian growth. There are also several isolated buttes within the study area whose steep slopes and rocky summits have only limited amounts of vegetation.

Two types of plant associations that have resulted from extensive disturbance by man are also located within the General Plan study area. The City of Lancaster comprises mainly *Disturbed Urban Land*. Much of the land within the City is already developed, and supports only weedy species or non-native plants introduced by landscaping. Outside of the City limits, there are large expanses of *Disturbed Agricultural Land*. While some of this land is being actively farmed, much of it lies fallow or has been abandoned. Annual grasslands cover large expanses of these former agricultural lands.

Tables II-C-1 and II-C-2 provide extensive lists of plant and animal species expected within the study area. These lists were compiled from biological studies prepared for recent environmental impact reports, and from consultation with local experts. They are based on standard taxonomic references for plants (Munz 1974), mammals (Janeson 1988), reptiles, amphibians (Stebbins 1985), and birds (AOU 1982 and Robbins 1986). Figure II-C-1 shows the location of major plant communities and sensitive biological resources within the study area. A survey conducted by Tierra Madre Consultants, Inc. (October, 1991) provides detailed information on plants and animals observed during the spring of 1991 within the study area.

(1) Desert Scrub

Alkali Scrub Plants of this association consist of halophilic (salt-tolerant) species adapted to alkaline (or highly mineralized) soil and water. The most dominant plants are saltbush *(Atriplex spp.)*, which is also dominant in the other scrub communities, and succulent Chenopods, such as pickleweed *(Salicornia spp.)* and blites *(Suaeda spp.)*. Other common species include saltgrass *(Distichilis spicata)*, iodine weed *(Suaeda torreyana ramosissima)*, green Molly *(Kochia americana)*, Nitrophila, inkweed *(Sudaea moquinii)*, and sea blite *(Suaeda fruticosa)*. Depending on its location, these areas can also contain cotton thorn *(Tetradymia spinosa var. longispina)*, sagebrush *(Artemisia tridentata)*, and invasive weedy species.

Alkali Sinks Some areas of alkali desert scrub are depressed and collect infrequent runoff during periods of seasonal rain. The presence of standing water, even for short periods of time, supports certain species not found in most scrub or woodland areas. These areas may occupy only a portion of an acre, or represent a dry lake bed covering hundreds of acres during rainy periods. Some of these alkaline areas support the alkali Mariposa lily *(Calochortus striatus)* (see Sensitive Flora) (CDFG 1990, CNPS 1988). A number of alkali sinks are located: 1) between Avenues L and M, from 20th to 40th Street (West); 2) north of Avenue I near Fox Field; and 3) around the Rosamond (dry) Lake within the Edwards Air Force Base. Both Rosamond Lake and the Edwards Base are considered "Significant Ecological Areas" (SEA 47 and 50) by the County of Los Angeles.

Creosote Scrub This association covers extensive portions of the study area and is dominated by creosote bush *(Larrea tridentata)*. It thrives on well-drained slopes, alluvial fans, and valleys, but is supplanted by shadscale scrub plants in the flatter, hard-pan, more alkaline portions of the desert basin. Other shrubs found in this association, depending on location, are ephedra *(Ephedra spp.)* and four-wing saltbush (Atriplex canescens). This scrub association is most readily found in the northeast portions of the study area.

Shadscale Scrub This association is found in the flat, hard-pan portions of the study area. It is dominated by four varieties of saltbush *(Atriplex spp.)*, with shadscale *(Atriplex confertifolia)* being the most abundant. Also common are spinescale *(Atriplex spinifera)*, and arrowscale *(Atriplex phyllostegia)*. Sagebrush *(Artemisia spinescens)* and Grayia spinosa are found in some locations, as are allscale *(Atriplex polycarpa)* and desert holly *(Atriplex hymenelytra)*.

Table II-C-1
Local Plants

Scientific Name	Common Name	Desert Scrub	Desert Woodland	Upland Scrub	Riparian	Disturbed (Agriculture)	Disturbed (Urban)	Desert Wash
Abronia poganatha	Mojave sand verbena	•	•					•
Ambrosia acanthicarpa	annual burweed	•	•	•	•	•	•	•
Ambrosia psilostachya	western ragweed	•	•	•		•		
Adenostoma fasciculatum	chamise			•				
Agrostis exarata	spike redtop			•		•		
Allenrolfea occidentalis	pickleweed	•						
Allium fimbriatum	desert onion	•	•					•
Allium sp. (seeding)	onion			•	•			
Alnus rhombifolia	white alder				•			•
Amaranthus blitoides	amaranth				•			
Amaranthus retroflexus	amaranth				•			
Ambrosia dumosa	sand bur	•	•					•
Amsinckia intermedia	rancher's fiddleneck	•	•			•		
Amsinckia tesellata	fiddleneck	•	•					
Anisocoma acaulis	scale bud	•	•					•
Arctostaphylos spp.	manzanita			•				
Artemisia tridentata var. parishii	sagebrush	•		•				
Artemisia spinescens	budscale	•	•	•				•
Arundo donax	giant cane				•			
Asclepias californica	California milkweed			•	•	•	•	
Astragalus lentiginosus	dapple pod			•	•	•		
Astragalus spp.	milk vetch			•	•	•		
Atriplex canescens	four-wing saltbush	•	•					•
Atriplex confertifolia	saltbush	•	•					•
Atriplex lentiformis	lenscale	•	•	•				•
Atriplex parryi	Parry's saltbush	•	•					•
Atriplex phyllostegia	arrowscale	•	•					•
Atriplex polycarpa	allscale	•	•					•
Atriplex rosea	redscale	•	•					•
Atriplex spinifera	spinescale	•	•				•	•
Avena barbata	wild oat			•		•	•	
Avena fatua	wild oat			•	•	•	•	
Baccharis sergiloides	squaw waterweed				•			
Bassia hyssopifolia	five-hook bassia		•	•				
Brassica geniculata	field mustard			•		•	•	
Bromus arenarius	Australian brome			•	•	•	•	
Bromus diandrus	ripgut			•		•	•	
Bromus rubens	red brome	•		•	•	•	•	
Bromus tectorum	cheat grass	•		•	•	•	•	
Calochortus striatus	alkali mariposa lily	•						•

Table II-C-1
Local Plants

Scientific Name	Common Name	Desert Scrub	Desert Woodland	Upland Scrub	Riparian	Disturbed (Agriculture)	Disturbed (Urban)	Desert Wash
Camissonia boothii	woody bottlewasher	•	•					
Chenopodium spp.	Mexican tea	•	•					•
Camissonia kernensis gilmanii	primrose			•	•			
Cardaria pubescens	whitehead				•	•	•	
Carex sp.	sedges				•			
Caulanthus lasiophyllum	mustard					•		
Ceanothus spp.	wild-lilac		•	•	•			
Chaenactis spp.	pincushion flower	•	•	•	•			
Chamaesyce polycarpa	small-seed sandmat	•	•	•		•	•	•
Chorizanthe brevisornu	brittle spine-flower	•	•					•
Chorizanthe spinosa	Mojave spineflower	•	•					•
Chrysothamnus nauseosus	rabbit brush	•	•					•
Cleomella obtusifolia	stinkweed	•	•	•				
Colenia plicata	coldernia	•	•					•
Cryptantha sp.	popcorn flower	•	•					•
Corethrogyne filaginifolia	cud weed-aster/woody-aster	•	•	•				•
Cynodon dactylon	Bermuda grass				•	•	•	
Datura meteloides	Jimsom weed	•	•	•				•
Datura wrightii	sacred datura	•	•					•
Delphinium parishii	Parish's larkspur		•	•				
Descurainia pinnata	yellow tansy mustard	•	•					•
Descurainia sophia	Tansy mustard		•	•		•	•	
Dichondra spp.	dichondra					•	•	
Distichlis spicata	salt grass				•			•
Eleocharis montevidensis	Dombey's spike-sedge			•				
Elymus condensatus	wild rye	•				•		
Ephedra californica	Mormon tea	•	•					•
Ephedra nevadensis	Mormon tea	•	•	•				
Ephedra viridis	ephedra	•	•					•
Eremalche exilis	trailing mallow		•	•				
Eremalche rotundifolia	desert fivespot	•	•					•
Eremocarpus setigerus	doveweed			•		•	•	
Eriastrum diffusum	desert woolly-star	•	•					•
Eriastrum eremicum	sapphire flower	•	•					
Ericaqmeria cooperi	desert goldenbush	•	•					•
Eriogonum angulosum	annual buckwheat		•	•		•		
Eriogonum fasciculatum foliolosum	interior flat-top buckwheat	•	•	•				
Eriogonum fasciculatum ssp. polifolium	desert buckweat	•	•	•				•

Table II-C-1
Local Plants

Scientific Name	Common Name	Desert Scrub	Desert Woodland	Upland Scrub	Riparian	Disturbed (Agriculture)	Disturbed (Urban)	Desert Wash
Eriogonum heermannii	Heermann's buckwheat	•	•	•				•
Eriogonum mohavense	Mojave buckwheat	•	•					•
Eriogonum nidularium	whisk broom	•	•					•
Eriogonum plumatella	yucca buckwheat	•	•					•
Erioganum pusillum	yellow turban	•	•					•
Eriophyllum wallacei	dwarf woolly leaf/golden yarrow	•	•					•
Eriophyllum spp.	eriophyllum	•	•					•
Erodium cicutarium	red-stem filaree			•	•	•	•	
Erysimum capitatum	western wallflower		•	•				
Escholtzia californica	California poppy	•						
Escholzia spp.	poppy	•						
Euphorbia polycarpa	sandmat	•	•					•
Eurotia lanata	winterfat	•	•					
Forestiera neomexicana	desert olive	•			•			
Gilia parryi	gilia	•						
Grayia spinosa	hop sage/grayia	•	•					•
Gutierrezia microcephala	yellow matchweed	•	•					
Gutierrezia sarathrae	San Joaquin matchweed	•	•					•
Haplopappus acradenius	alkali goldenbush	•						•
Haplopappus cooperi	Cooper's goldenbush	•	•					•
Haplopappus linearifolius	goldenbrush	•	•					•
Helianthus annuus	annual sunflower			•	•	•	•	
Heliotropium curassavacum	wild heliotrope/Chinese pusley	•			•	•	•	•
Hordeum leporinum	barley			•		•	•	
Hordeum murinum	foxtail barley			•	•	•	•	
Hymemoclea salsola	white burrobush/ cheesebush	•	•					•
Juniperus californicus	California juniper		•					
Kochia americana	green molly	•						
Lactuca serriola	prickly lettuce			•	•	•	•	
Langloisia matthewsii	desert calico	•	•					•
Larrea tridentata	creosote bush	•	•	•				•
Lasthenia chrysostoma	goldenfields		•	•				
Layia glandulosa	tidy tips	•	•	•				
Lepidium fremontii	desert alyssum	•	•	•				
Lepidium perfoliatum	shield cress			•	•	•	•	
Lessingia lemmonii var. peirsonii	lessengia	•	•					•
Linanthus aureus	linanthus	•	•					•
Lolium perenne	ryegrass			•		•	•	

Table II-C-1
Local Plants

Scientific Name	Common Name	Desert Scrub	Desert Woodland	Upland Scrub	Riparian	Disturbed (Agriculture)	Disturbed (Urban)	Desert Wash
Lomatium dasycarpum	dasycarpum	•	•					•
Lupinus spp.	lupine	•	•	•				•
Lycium andersonii	boxthorn/waterjacket	•	•	•				
Lycium cooperi	Cooper's boxthorn	•	•					
Lycium parishii	wolfberry	•	•					•
Malocothrix californica	desert dandelion	•	•					
Malvastrum exile	white mallow		•	•	•			
Marrubium vulgare	horehound			•		•	•	
Matricaria matricariodes	pineapple weed		•	•	•			
Medicago sativa	alfalfa					•		
Mentzelia affinis	yellow comet	•	•					•
Mimulus bigelovi	monkey flower			•				
Mirabilis bigelovii	four-o'clock	•	•					•
Monardella exilis	desert monardella	•	•					
Nitrophilia occidentalis	western nitrophila	•						
Oenothera californica	evening-primrose	•	•	•				
Olea europea	common olive			•	•			
Opuntia echinocarpa	silver cholla	•	•					•
Opuntia ramosissima	pencil cholla	•	•					•
Oryzopsis hymenoides	indian rice-grass		•					
Pectocarya linearis	slender pectocarya	•	•					•
Penstemon incertus	desert bearded tongue	•	•					•
Phacelia bicolor	two color phacelice	•	•					•
Phacelia spp.	wild heliotrope	•	•	•				•
Pinus monophylla	one-leaf pinyon		•					
Plantago erecta	dot-seed plantain	•	•					•
Platanus racemosa	western sycamore				•			
Poa annua	annual bluegrass	•	•	•				
Populus fremontii	cottonwood				•			
Populus trichocarpa	black cottonwood				•			
Prunus fasciculata	desert almond			•	•			
Quercus agrifolia	coast live oak			•	•			
Quercus dumosa	scrub oak			•				
Rafinesquia californica	California chicory			•	•			
Rumex crispus	curley dock			•	•	•	•	
Salazaria maxicana	bladder sage/paperbag bush		•	•				
Salicornia spp.	pickleweed	•						
Salix spp.	willow				•			
Salsola iberiea	tumbleweed	•				•	•	

Table II-C-1
Local Plants

Scientific Name	Common Name	Desert Scrub	Desert Woodland	Upland Scrub	Riparian	Disturbed (Agriculture)	Disturbed (Urban)	Desert Wash
Salsola kali	Russian thistle					•	•	
Salvia dorrii	blue sage			•				
Salvia carduacea	thistle sage		•	•				
Salvia dorrii	mint			•	•			
Schismus arabicus	Arab grass	•	•	•		•	•	
Schismus barbatus	Mediterranean schismus			•		•	•	
Sisymbrium irio	London rocket			•	•			
Secale cereale	rye grass			•		•	•	
Sitanion histrix	squirrel-tail grass		•	•				
Sitanion longifolium	squirrel-tail grass		•	•				
Sporobolus airoides	alkali sacaton	•						•
Stephanomeria exigua	wreath plant	•	•	•				
Stephanomeria parryi	mitra	•	•					•
Stephanomeria pauciflora	wire lettuce		•	•				
Stipa speciosa	desert stipa	•	•					•
Suaeda moquinii	inkweed	•						
Suaeda fruticosa	sea blight	•						
Tamarix parviflora	tamarisk				•			•
Tamarix pentandra	tamarisk				•			
Tetradymia glabrata	cotton thorn	•	•					•
Tetradymia spinosa var. longispina	cotton thorn	•	•					•
Tetradymia stenolepis	horsebush	•	•					•
Thelypodium integrifolium	alkali twistflower	•	•					•
Trichostoma lanatum	vinegar weed					•	•	
Tribulus terrestris	puncture vine	•	•			•	•	
Typha spp.	cat-tail				•			
Ulmus parvifolia	Chinese elm						•	
Vulpia myuros	rattail fescue				•	•	•	
Yucca brevifolia var. brevifolia	Joshua tree		•					
Yucca whipplei	Our Lord's Candle	•	•					•

Table II-C-2
Local Animals

Scientific Name	Common Name	Desert Scrub	Desert Woodland	Upland Scrub	Riparian	Disturbed (Agriculture)	Disturbed (Urban)	Desert Wash
AMPHIBIANS								
Bufo boreas	western toad				•	•		
Bufo punctatus	red-spotted toad				•			
Pseudacris vegilla	Pacific chorus frog				•	•	•	
REPTILES								
Arizona elegans	glossy snake			•	•	•		
Callisaurus draconoides	zebra-tailed lizard	•	•					•
Chionactis occipitalis	western shovel-nosed snake			•	•			•
Coleonyx variegatus	banded gecko	•	•	•				•
Coluber constrictor	racer			•	•			
Cnemidophorus tigris	western whiptail	•	•					
Crotalus cerastes	sidewinder	•	•					•
Crotalus mitchelli	speckled rattlesnake	•	•					
Crotalus scutulatus	Mojave rattlesnake	•	•			•		
Crotalus viridis helleri	southern Pacific rattlesnake	•	•	•				
Crotaphytus bicinetores	Mojave black collared lizard	•						•
Dipsosaurus dorsalis	desert iguana	•	•					•
Gambelia wislizenii	long-nosed leopard lizard	•	•					
Gerrhonotus multicarinatus	southern alligator lizard		•	•	•			
Gopherus agassizi	desert tortoise	•	•					•
Hypsiglena torquata	night snake	•	•	•				
Lampropeltis getulus	common kingsnake			•	•	•		
Lichanura trivirgata	desert rosy boa	•	•					•
Masticophus flagellum	coachwhip		•	•	•			
Pituophis cateniter	gopher snake		•	•	•			
Phrynosoma coronatum	coast horned lizard			•				•
Phrynosoma coronatum blainvillii	San Diego horned lizard							•
Pituophis melanoleucus	gopher snake			•	•			
Phrynosoma platyrhynos	desert horned lizard	•	•					•
Salvadora hexigramma	western patch-nosed snake		•	•	•			
Sceloporus graciosus	sagebrush lizard	•	•					•
Sceloporus magister	desert spiny lizard		•		•			•
Sceloporus occidentialis	western fence lizard		•	•	•	•	•	
Trimorphodon biscutatus	lyre snake	•	•					•
Uta stansburiana	side-blotched lizard		•	•		•	•	•
Xantusia Vigilis	desert night lizard		•					

Table II-C-2
Local Animals

Scientific Name	Common Name	Desert Scrub	Desert Woodland	Upland Scrub	Riparian	Disturbed (Agriculture)	Disturbed (Urban)	Desert Wash
MAMMALS								
Ammospermophilus leucurus	antelope ground squirrel		•	•	•			
Antrozous pallidus	pallid bat	•	•					•
Bassariscus astutus	ringtail				•			
Canis domesticus	feral dog		•	•	•	•	•	
Canis latrans	coyote		•	•	•			
Dipodomys panamintians merriami	Merriam's kangaroo rat	•	•					•
Eptesicus fuscus	big brown bat	•	•	•		•		•
Felis domesticus	feral cat		•	•	•	•	•	
Lepus californicus	black-tailed hare	•	•	•		•		•
Lynx rufus	bobcat		•	•	•			
Mephitus mephitus	striped skunk		•	•	•	•		
Mus musculus	house mouse			•		•	•	
Myotis califronicus	California bat	•	•	•	•	•		•
Myotis leibii	small-footed bat	•	•	•		•		
Myotis lucifugus	little brown bat	•	•	•	•	•		•
Myotis volants	long-legged bat	•	•	•				•
Myotis vumanensii	Yuma myotis	•	•	•				•
Neotoma fuscipes	dusky-footed wood rat		•	•	•			
Neotoma lepida	desert woodrat	•	•	•				
Notiosorex crawfordi	desert shrew	•	•					•
Odocoileus hemionus	black-tailed deer		•		•			
Onychomys torridus	southern grasshopper mouse		•			•	•	
Perognathus californicus	California pocket mouse			•		•		
Perognathus longimembris	little pocket mouse	•	•	•				
Peromyscus maniculatus	deer mice	•	•	•		•	•	•
Pipistrellus hesperus	western pipistrelle bat	•	•					•
Plecotus townsendii	Townsend's big eared bat	•	•					•
Procyon lotor	raccoon		•	•	•	•		
Ratus norvegicus	Norway rat					•	•	
Reithrdontys megalotis	western harvest mouse	•	•			•	•	
Spermophilus mohavensis	Mojave ground squirrel	•	•					•
Spermophilus beecheyi	California ground squirrel		•	•		•	•	
Spermophilus tereticaudus	round-tailed ground squirrel	•	•	•				
Spilogale putorius	spotted skunk			•	•			
Sylvilagus audubonii	Audubon's cottontail	•	•	•	•	•		•
Tadarida brasiliensis	Brazilian free-tailed bat	•	•					•
Taxidea taxus	badger		•	•	•			
Thomomys bottae	pocket gopher			•		•	•	

Table II-C-2
Local Animals

Scientific Name	Common Name	Desert Scrub	Desert Woodland	Upland Scrub	Riparian	Disturbed (Agriculture)	Disturbed (Urban)	Desert Wash
Urocyon cinereoargenteus	grey fox		•	•	•			
Vulpes macrotis	desert kit fox	•	•					•
BIRDS								
Accipiter cooperii	Cooper's hawk		•	•	•			
Accipiter striatus	sharp-shinned hawk		•	•	•			
Aeronautes saxatalis	white-throated swift			•				
Agelaius phoeniceus	red-winged blackbird			•	•	•		
Agelaius tricolor	tricolored blackbird				•			
Amphispiza belli	sage sparrow		•	•				
Amphispiza bilineata	black-throated sparrow	•	•	•				•
Aphelocoma coerulescens	scrub jay	•	•		•			
Aquila chrysaetos	golden eagle			•	•			
Archilocus alexandri	black-chinned hummingbird			•	•			
Athene cunicularia	burrowing owl	•	•	•				
Bombycilla cedrorum	cedar waxwing			•	•	•		
Buteo jamaicensis	red-tailed hawk	•	•	•	•	•	•	•
Buteo lagopus	rough-legged hawk	•	•	•				•
Buteo regalis	ferruginous hawk	•	•	•				•
Buteo swainsoni	Swainson's hawk	•	•	•				•
Bubo virginianus	great horned owl		•	•	•	•		
Callipepla californica	California quail	•	•	•		•		•
Calypte anna	Anna hummingbird			•	•			
Calypte costae	Costa's hummingbird	•	•					
Camphylorhynchus brunneicapillus	cactus wren	•	•					•
Carduelis lawrence	Lawrence's goldfinch		•	•	•			
Carduelis psaltria	lesser goldfinch	•	•	•	•	•	•	•
Carpodacus mexicanus	house finch	•	•	•	•	•	•	•
Cathartes aura	turkey vulture	•	•	•	•	•		•
Chaetura vauxi	Vaux's swift		•	•				
Charadrius vociferus	killdeer	•	•	•		•		•
Chondestes grammacus	Lark sparrow			•	•	•		
Chordeiles acutipennis	lesser nigth hawk		•	•				
Circus cyaneus	northern harrier		•	•				
Circus cyaneus	marsh hawk				•			
Colaptes auratus	northern flicker	•	•	•				

Table II-C-2
Local Animals

Scientific Name	Common Name	Desert Scrub	Desert Woodland	Upland Scrub	Riparian	Disturbed (Agriculture)	Disturbed (Urban)	Desert Wash
Colaptes cafer	common flicker		•	•	•			
Colaptes chrusoides	gilded flicker	•	•					•
Columba livia	rock dove	•	•	•	•	•	•	•
Corvus brachyrhyncos	American crow			•	•	•	•	
Corvus corax	common raven	•	•	•	•	•	•	•
Dendrocopos scalaria	ladder-backed flicker		•	•	•			
Dendroica coronata	yellow-rumped warbler			•	•			
Elanus caereleus	black-shouldered kite			•		•		
Elanus leucurus	white-tailed kite			•		•		
Empidonax trailli	willow flycatcher				•			
Eremophila alpestris	horned lark		•			•		
Euphagus cyanocephalus	Brewer's blackbird			•		•	•	
Falco aparverius	sparrow hawk		•	•		•		
Falco sparverius	American kestrel	•	•	•		•		
Falco mexicanus	prairie falcon	•	•	•		•		
Geococcyx califorianus	roadrunner	•	•	•		•		•
Gymnorhinus cyanocephalus	pinyon jay	•	•					
Hirundo pyrrhonota	cliff swallow		•	•				
Hirundo rustica	barn swallow		•			•		
Icterus bullockii	Bullock's oriole		•	•				
Icterus parisorum	Scott's oriole		•					
Iridoprocne bicolor	tree swallow		•	•	•			
Junco hyemalis	dark-eyed junco		•	•	•			
Junco oreganus	Oregon junco				•	•	•	
Lanius ludovicianus	loggerhead shrike	•	•	•		•		•
Larus delawarensis	ring-billed gull					•	•	
Lophortyx gambelii	Gambel's quail			•				•
Melanerpes lewisi	Lewis' woodpecker		•		•			
Melodia melospiza	song sparrow	•	•	•	•		•	
Mimus polyglottus	northern mockingbird	•	•	•	•	•	•	
Myadestes Townsendi	Townsend's solitaire			•	•			•
Myiarchus cinerascens	ash-throated flycatcher		•			•		
Numenius americanus	long-billed curlew				•			
Oreoscoptes montanus	sage thrasher	•	•					•
Passerculus domesticus	house sparrow		•	•		•	•	
Passerculus sandwichensis	savannah sparrow	•	•	•				•
Petrochelidon pyrrhonota	cliff swallow		•	•			•	

Table II-C-2
Local Animals

Scientific Name	Common Name	Desert Scrub	Desert Woodland	Upland Scrub	Riparian	Disturbed (Agriculture)	Disturbed (Urban)	Desert Wash
Phainopepola nitens	phainopepola	•	•					•
Phalaenoptilus nuttallii	poor-will		•	•	•	•		
Picoise scalaris	Ladder-backed woodpecker		•		•			
Pipilo erythrophthalmus	rufous-sided towhee		•	•	•	•	•	
Pipilo fuscus	brown towhee	•	•	•	•			•
Piranga olivacea	western tanager				•			
Salpinctes obsoletus	rock wren	•	•					•
Sayornis nigricans	black phoebe			•	•	•		
Sayornis saya	Say's phoebe		•	•		•		
Sialia currucoides	mountain bluebird				•			
Sialia mexicana	western bluebird	•	•	•		•		
Speotyto cunicularia	burrowing owl	•		•				•
Spizella atrogularis	black-chinned sparrow		•	•	•			
Spizella breweri	Brewer's sparrow	•	•	•				•
Stelgidopteryx serripennis	northern rough-windged swallow				•			
Sturnella neglecta	western meadowlark		•	•		•		
Sturnus vulgaris	starling			•	•	•	•	
Thryomanes bewickii	Bewick's wren	•	•	•		•	•	
Toxostoma dorsale	Crissal thrasher			•	•			•
Toxostoma lecontei	Le Conte's thrasher	•	•					•
Toxostoma redivivum	California thrasher		•	•	•			•
Turdus migratorus	American robin				•	•	•	
Tyrannus verticalis	western kingbird				•	•		
Tyto alba	barn owl		•	•	•	•		
Zenaida macroura	mourning dove	•	•	•	•	•	•	•
Zonotrichia leucophrys	white-crowned sparrow			•	•	•		

(2) Desert Wash

Natural runoff from the nearby mountains has created various washes and channels throughout the study area. These washes range from depressions that are so broad they are difficult to identify (such as the northern portions of Amargosa Creek), to actual channels with steep sides (such as Little Rock Wash). Most of these washes support a variety of desert scrub plants, such as sand bur *(Ambrosia dumosa)*, Parry's saltbush *(Atriplex parryi)*, arrowscale *(Atriplex phyllostegia)*, rabbit brush *(Chrysothamnus nauseosus)*, white burrobush or cheesebush *(Hymemoclea salsola)*. Some of the more well defined channels support species such as jimson weed *(Datura meteloides)* and desert buckwheat *(Eriogonum fasciculatum ssp. polifolium)*. The type and extent of plants a channel supports depends on its topography, as well as the amount and frequency of runoff. Steep-sided channels indicate that the infrequent runoff is fast moving, which can scour channel bottoms and slopes of vegetation, while the more level channels have more gentle flows, permitting establishment of vegetation. Since none of the desert washes have year-round flows, few riparian plants are found in this habitat, although taller, woodier desert woodland plants may thrive along some of the washes.

The most significant natural desert wash within the study area in terms of plant diversity and biological value is Little Rock Wash, located south of 60th Street East and Avenue I. This area is largely undisturbed, at present, and is also classified as a "Significant Ecological Area" by the County of Los Angeles (SEA # 49). South of the Lancaster study area, near Palmdale, the Little Rock Wash joins with the Big Rock Wash to form a large, poorly defined alluvial fan.

(3) Desert Woodlands

Some areas with desert scrub vegetation also support larger shrubs and sometimes certain trees that can tolerate or thrive in desert conditions. The two primary species in the Lancaster area that define desert woodlands are the California juniper *(Juniperus californica)* and the Joshua tree *(Yucca brevifolia)*. The Joshua tree is considered the symbol of the Antelope Valley, with three varieties within the region. The *brevifolia* variety predominates throughout the Antelope Valley, but the *herbertii* variety is more common to the west, in the Tehachapi foothills. The *jageriana* variety is more common to the southeast, near Phelan. Undergrowth in these woodlands is dominated by rabbitbrush *(Chrysothamnus nauseosus)*, as well as other shrubs and annuals.

The California Department of Fish and Game, as well as the County of Los Angeles, consider the Joshua tree as needing some type of protection (CDFG 1990). This species is considered very susceptible to disturbance by human activity; it does not tolerate soil compaction, nor is it easily relocated. It can be best preserved in large, well-populated stands, with its associated understory plants, that are isolated from human disturbances (Vegetative Management Area Study 1982).

While many individual trees can be found in the Antelope Valley, especially in the eastern portions of the General Plan study area, most trees are isolated, and actual Joshua tree woodlands are limited. In 1976, significant stands of Joshua trees in the northwest corner of the study area were designated as a Significant Ecological Area (SEA 60) by the County of Los Angeles. Since then, there has been a progressive loss of Joshua trees to new development.

The most significant existing Joshua tree stands are located southwest of downtown Lancaster, as well as northeast and south of Quartz Hill, and south of Rawley Duntley Park. Individual trees can also be found growing sparsely in the area directly northwest of Fox Field, south of Avenue C, north of Avenue F, east of 80th Street West, and west of 40th Street West. Developments and subdivisions into five-acre parcels have occurred in this area, thus encroaching upon this desert woodland community. The 1982 Vegetative Management Area Study classifies woodlands as "prime" depending on the number and health of Juniper and Joshua trees and the extent of disturbance.

It should be noted that Pinyon-Juniper Woodlands were previously identified in the Lancaster area (General Plan 1980), but are not presently found within the General Plan study area (Yorke 1991). This open woodland association is dominated by the one-leaf pinyon pine *(Pinus monophylla)*, and was once reportedly found on a few of the steeper, north-facing desert slopes south of Lancaster. The California Department of Fish and Game considers this association extremely sensitive to disturbance by human activity damage by air pollution (CDFG 1990). These unique forests have become rare in Los Angeles County. In 1963, the Antelope Valley contained approximately 138,000 acres of this forest, most of which had been lost by 1980 (Envicom 1980).

(4) Upland Scrub

This inland or montane association is found on some of the dry, rocky, gravelly slopes in the southwest portion of the study area. In some areas, it covers the lower foothill slopes and adjacent basins. It is dominated by Sagebrush *(Artemisia tridentata)*, White sage *(Salvia apiana)*, Buckwheat *(Erogonium spp.)*, and Rabbit brush *(Chrysothamnus spp.)*. In some areas, Chamise *(Adenostoma fasciculatum)* is also found. As elevations rise out of the study area (to the south), heartier species, such as ceanothus *(Ceanothus spp.)*, manzanita *(Arctostaphylos spp.)*, and scrub oak *(Quercus dumosa)*, can be found in isolated locations.

(5) Riparian Woodland/Wetlands

There are several locations within the General Plan study area that support riparian (stream-side) or wetland vegetation. The southwestern margin of the study area contains a few isolated springs or seeps. In addition, several open reservoirs or man-made lakes (such as in Apollo Park) contain water almost or all year round. The Avenue C marsh, otherwise known as the Piute Ponds, is located within Edwards AFB, and supports a variety of riparian plants. Migratory birds have been observed utilizing both Apollo Lake and the Piute Ponds. There are no perennial creeks or channels within the study area. Although there is significant runoff during wet periods, flows along the desert washes tend to be heavy, which precludes the establishment of extensive riparian growth.

Riparian vegetation includes willow *(Salix spp.)*, cottonwood *(Populus spp.)*, white alder *(Alnus rhombifolia)*, coast live oak *(Quercus agrifolia)*, western sycamore *(Platanus racemosa)*, and cat-tail *(Typha spp.)*, among others.

(6) Disturbed Areas

Agriculture At one time, the Antelope Valley was extensively farmed, and encompassed a variety of agricultural activities, including row and field crops, orchards, and pastures. Few areas are actively farmed today. The few agricultural areas that are still active, are generally dry farmed, irrigated alfalfa, onions, or used for grazing. Actively farmed areas are maintained fairly weed free. However, fallow or vacant agricultural land can be quickly overrun with local and introduced weedy species. Many abandoned farms and vacant, open lands support extensive grasslands in the eastern and western portions of the study area. Non-native grasses have supplanted the original native grasses, so that only introduced grasses, such as brome, or cheat *(Bromus spp.)*, barley *(Hordeum spp.)*, and fescue *(Vulpia spp.)* remain today. Other common weedy species on fallow agricultural lands include russian thistle, or tumbleweed *(Salsola iberica)*, curly dock *(Rumex crispus)*, and varieties of mustard *(Brassica spp.)*.

Urban Areas Vacant lots or undeveloped parcels within the older portions of Lancaster support a variety of weedy or introduced species. Little native or other significant vegetation grows in these areas due to regular weed abatement. Typical species include tumbleweed *(Salsola iberica)*, mustard *(Brassica spp.)*, filaree *(Erodium cicutarium)*, dove weed *(Eremocarpus setigerus)*, and occasionally sunflowers *(Helianthus spp.)*.

b. Limiting Factors

Plants in the Lancaster area are subject to a variety of physical constraints that affect their growth, although water is by far the most important in determining their distribution and composition. Native plants in the Lancaster area have adapted to desert (or xeric) conditions. These plants are called xeriphytes, and require little rainfall or regular moisture. Xeriphytes have not only adapted to, but actually thrive in, the unique dry conditions of the desert. Many species, such as the Joshua tree, are actually damaged by a regular water source, such as if their root zones are regularly irrigated (Larson 1987).

The desert scrub, desert wash, and desert woodland communities are all fully adapted to desert conditions, and contain many of the same drought-tolerant species as desert scrub community. However, the desert washes receive periodic flood flows from the mountains to the west and southwest, which create opportunities for more ephemeral or less xeric (drought tolerant) species. While the desert washes contain some opportunistic flowering annuals (ephemerals) that sprout, grow, reproduce, then die immediately after spring rains, these are not considered truly drought-adapted plants, as they only grow when water is more abundant, and do not tolerate annual desert conditions as true xeriphytes. Joshua trees, and many associated shrubs and herbaceous plants, comprise the desert woodland community. Since the amount of rainfall generally increases from east to west, the more xeric species are found in the undisturbed eastern portions of the study area, while upland scrub plants begin to predominate as one moves southwest toward to the foothills.

Several other physical factors that limit or control plant distribution include soil type, slope, and elevation. These three factors are interrelated, and often combine to create isolated outpockets of flora that differ from surrounding areas, such as on the slopes and tops of many of the local buttes, or in canyons along the San Gabriel foothills. Soils also help determine the location of certain species within large assemblages of plants. For example, creosote bush *(Larrea)* dominates on well-drained alluvial soils, while shadscale and saltbush *(Atriplex)*

become more dominant on hard pan soils. In addition, the alkali Mariposa lily is only found in playa or dry lake areas with very specific alkaline (or mineralized) soils. The type of plants associated with disturbed areas depends on the extent and frequency of disturbance, as well as their proximity to undisturbed native areas.

c. Wildlife

The sum of all physical and biological conditions necessary for a particular species to function (e.g. live, eat, reproduce) is called its niche. The combination of desert and montane conditions in the study area create a wide range of niches for local wildlife. To a large degree, the types and location of vegetational communities determine the diversity of habitats available for local wildlife. Many animals can utilize a wide range of areas and resources to sustain themselves. Small birds, mammals, and rodents often utilize both the desert floor and nearby foothills for food and shelter. Mice, rats, gophers, songbirds, and other opportunistic creatures can find food throughout the basin, including the more urbanized areas within Lancaster. Conversely, some animals have very limited ranges or restricted environmental conditions within which they thrive; such species can be severely threatened by changes or intrusions into their resource areas (such as the desert tortoise). Table II-C-2 provides a list of the wildlife species expected in the study area.

(1) Sensitive Species

At present, much of the study area supports fallow agricultural land, wide expanses of desert scrub, a few sizeable areas of desert woodland, and numerous disturbed or weedy areas. While disturbed areas support substantial populations of wildlife, the major focus on wildlife protection is: 1) identifying those species considered sensitive to human activity or that need protection from decline, and; 2) identifying those areas near, or adjacent to, natural areas that are undisturbed and/or can be maintained or expanded to support or preserve native wildlife.

It is the responsibility of various agencies to prevent the loss of or damage to biological resources. The U.S. Fish and Wildlife Service is responsible for designating species of nation-wide concern, while the California Department of Fish and Game is responsible for designating species of state-wide concern. These agencies exercise their powers under the federal and state Endangered Species Acts, respectively. For example, the U.S. Fish and Wildlife Service classifies certain species as endangered or threatened. These classifications carry legal protection, such as levying fines for damaging or killing individual animals under the U.S. Endangered Species Act of 1973. They classify other species as Category 1 or 2, which means they need additional study to determine if they are actually endangered. Eventually, Category 1 or 2 species may become endangered or threatened species, or it may be determined that the species is not endangered, and is taken off of sensitive species lists. These lists are continually updated to reflect the most current information on potential protection of sensitive species.

The California Department of Fish and Game, under the authority of the California Endangered Species Act of 1984, uses similar classifications for species, including endangered, threatened, rare (plants only), candidate, and species of special concern. The California Department of Fish and Game tries to maintain the most current information on sensitive species through the Natural Diversity Data Base.

It should be noted that these agencies, especially the California Department of Fish and Game, depend largely on research and surveys by private individuals and/or educational institutions. Data on the distribution of a particular species may be based entirely on one out-of-date survey; habitat requirements may be based on a few controlled experiments, rather than on actual field observations and measurements. It is likely there are additional species that are locally sensitive, but are not listed at the state or local levels because there is insufficient data, or a lack of time or personnel to devote to study of the species.

Although the state and federal agencies attempt to coordinate their efforts, many species do not have similar classifications regarding sensitivity (such as rare or endangered) (CDFG 1990). A particular species may be a (federal) Category 2 species, but not be considered sensitive by the state. Conversely, the state may give a protected status to one species, but it may not be acknowledged on the federal list. For example, the Mojave ground squirrel is considered threatened by Fish and Game (state), but Fish and Wildlife (federal) does not recognize this status. In addition, there may be a species considered extremely sensitive by local experts, but may not be classified by either the state or federal agencies.

In addition to these state and federal agencies, the non-profit California Native Plant Society (CNPS) maintains lists of plants that have special local, regional, or state-wide interest (CNPS 1988). Although the CNPS maintains their lists independent of Fish and Wildlife or Fish and Game, these agencies try to coordinate their protective efforts by continually updating and refining their lists as new information on species becomes available. Table II-C-3 provides a list of sensitive plants known to occur in the study area.

d. Sensitive Flora

Alkali Mariposa Lily *(Calochortus striatus)* The Federal Fish and Wildlife Service considers this a Category 2 species, meaning it needs more study before its status can be determined. The California Native Plant Society categorizes it with a R-E-D listing of 2-2-2, which means that its occurrence is confined to several populations or one extended one; it is endangered in a portion of its range; and it is rare outside of California. The lily is generally found in alkaline meadows and spring areas, and it is found locally west of 10th Street East between Avenues E and I. According to the Natural Diversity Data Base, this species has been found previously within the study area at the following locations:

- Northwest of Avenue E at 120th Street East
- North of Avenue D at 50th Street East (in Edwards AFB)
- North of Avenue D at 70th Street East (in Edwards AFB)
- Northeast of Avenue I/60th Street East
- Northwest of Avenue H/60th Street West
- Northeast of Avenue F/50th Street East
- Near Sierra Highway and Avenue H

In addition, several recent environmental impact reports (EIRs) found evidence of this species southwest of Avenue J/60th Street West, and southeast of Avenue G/30th Street West.

Mojave Spineflower *(Chorizanthe spinosa)* This plant is a federal Category 3 species, which means it is no longer being considered for endangered status, and is not designated at the state level. It generally occurs in dry, sandy, and gravelly places. It is found locally east of 10th Street East between Avenues I and H. The California Native Plant Society's R-E-D rating is 1-2-3, which means this native species is rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low; is endangered on a portion of its range; and does not occur outside of the state. A search of the state Natural Diversity Data Base discovered no reported sightings of this species, although recent EIRs noted it occurs in the area southwest of Avenue G/30th Street West.

Joshua Tree *(Yucca brevifolia)* The woodlands associated with this species are considered rare by the state, but have no federal status. Since this desert woodland represents a significant local resource, the City placed special designations on the General Plan map, and incorporated Section 295 into the Zoning Ordinance, which strives to protect portions of this association. This species is sensitive to human activities that compact soil around the base, or create air pollution, which interferes with photosynthesis. Five areas, totalling 313 acres, are located in the south-central portion of the City which contain prime desert (Joshua tree) woodlands. A portion of one of these areas has already been acquired by the City. The City is now considering other additions to add to their Prime Desert Woodland preservation efforts.

Peirson's Morning Glory *(Calystegia Peirsonii)* The Natural Diversity Data Base indicates that this federal Category 2 species (no state listing) has been previously found northwest of Avenue I/110th Street West.

California Poppy Reserve This state reserve was opened in 1976 to protect and promote public enjoyment of the colorful spring wildflowers of the Antelope Valley. The reserve contains such species as owl clover, desert dandelion, brodiaea, alkali gold fields, tidy tips, coreopsis, pincushion, filaree, locoweed, cream cups, fiddleneck, pigmy lupine, and, of course, the California poppy. Although this area is not intended as a preserve for any endangered species, the Natural Diversity Data Base indicates it is a significant regional botanical resource. In addition, the County of Los Angeles considers a sizable area around the preserve, Fairmont Butte, and Alpine Butte as a "Significant Ecological Area (SEA)" because it provides significant raptor habitat.

e. Sensitive Fauna

Table II-C-4 provides a list of sensitive animals known to occur in the study area.

Desert Tortoise *(Gopherus agassizi)* The Mojave population of the desert tortoise was listed as a federally Endangered species on August 4, 1989 by emergency rule, and as a Threatened species by final rule on April 2, 1990. Section 9 of the Endangered Species Act prohibits the "taking" of any federally listed threatened or endangered species without first obtaining necessary authority from the U.S. Fish and Wildlife Service. The term "take" includes "harming, harassing, pursuing, hunting, shooting, wounding, killing, capturing, collecting, or attempting to engage in any such conduct" (Section 3 (19), Endangered Species Act 1973, as amended). Harm includes "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or shelter" (50 CFR 17.3 (c)). "Take" also includes modification of habitat that would result in harm to the desert tortoise.

Table II-C-3
Sensitive Plants in the Lancaster Area[1]

Scientific Name	Common Name	Habitat	CNPS List	R-E-D Book	State/Fed Status
Calystegia Peirsonii	Pierson's Morning Glory	Chaparral and Coastal Scrub	4	1-1-3	/C2
Calochortus striatus Parish[2]	alkali mariposa lily	Chenopod Scrub (alkali meadows)	1B	2-2-2	/C2
Chorizanthe spinosa Wats[3]	Mojave spineflower	Chenopod Scrub, Jojavean Desert Scrub	4	1-2-3	/C3c

Source California Native Plant Society, "Inventory of Rare and Engangered Vascular Plants in California," 1988.

1 CNPS list only; does not reflect concerns on sensitivity of Joshua tree and California juniper woodlands.
2 Threatened by grazing and urbanization.
3 Threatened by off-road vehicles (ORVS).

KEY TO TABLE II-C-3

HABITAT

Mojavean Desert Scrub Widely scattered creosote bushes with the considerable space between them, sometimes occupied by ephemeral, colorful shows of annuals, following particularly wet winters. At elevations of 600 meters (2000 feet) or higher, succulents or microphyllous trees lacking. Along with Sonoran desert scrub found south of the San Bernardino/Riverside County lines, this habitat type constitutes the "creosote bush scrub" habitat described by Munz (1959).

Chenopod Scrub Usually gray, intricately branched, microphyllous shrubs most commonly on fine-textured, alkaline and/or saline soils in areas of impeded drainage. Diversity is usually low to monotonous. Saltbushes and greasewood frequently dominate.

Chaparral Inpenetrably dense, evergreen, leathery-leaved shrubs that are active in winter, dormant in summer, and adapted to frequent fires either through resprouting or seed carry-over. There is a characteristic florula of fire-following annuals and short-lived perennials. Mature stands may exceed 3-4 meters (10-13 feet) in height. It occurs on diverse substrates, many of which support distinctive suites of edaphic indicators. Chaparral may be successional to conifer forests or oak woodlands, as tree seedlings can be found beneath the shrub canopies.

Coastal Scrub Dense shrubs 0.5 to 2 meters (2-7 feet) tall with scattered grassy openings. Many plants dormant, even deciduous, during periods of water stress. Most sites have shallow rocky soils, frequently with a southern or western exposure. Many taxa adapted to fire by stump sprouting or high seed production.

CNPS LIST

1A - Plants presumed extinct in California
1B - Plants rare, threatened, or endangered in California and elsewhere.
2 - Plants rare, threatened, or endangered in California, but more common elsewhere.
3 - Plant about which more information is needed - a Review List.
4 - Plants of limited distribution - A Watch List.

KEY TO TABLE II-C-3 (continued)
R-E-D CODE

R (rarity)

1 Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.

2 Occurrence confined to several populations or to one extended population.

3 Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

E (endangerment)

1 Not endangered

2 Endangered in a portion of its range

3 Endangered throughout its range

D (distribution)

1 More or less widespread outside California

2 Rare outside California

3 Endemic to California

STATE/FEDERAL STATUS

(XX/) State Status Under the California Endangered Species Act (1984), native plants can be classified as rare, threatened, or endangered. Plants included in any of these three categories are afforded protection under the Act, as are Candidate species which are being considered for one of the three major classifications.

Rare
Although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens.

Threatened
Although not presently threatened with extinction, it is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.

Endangered
The prospects of survival and reproduction of the species are in immediate jeopardy from one or more causes.

(/XX) Federal Status Under the federal Endangered Species Act (1973), species that are officially listed as endangered or threatened are afforded full legal protection from harm. Species that have been proposed for listing as either endangered or threatened are afforded limited protection under the Act.

Endangered
Any species, including subspecies (and varieties), that are in danger of extinction throughout all or a significant portion of its range.

Threatened
Any species, including subspecies (and varieties), likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Proposed
Endangered or threatened species for which a proposed regulation has been published in the Federal Register, but not a final rule.

Additional Considerations Species that are considered candidates (of various types) for possible listing as endangered or threatened are afforded no federal legal protection under the Endangered Species Act at present. However, the California Department of Fish and Game has begun looking more closely at Candidate species and attempts to provide some level of protection, where appropriate, through its consultation authority under the California Environmental Quality Act (CEQA).

KEY TO TABLE II-C-3 (continued)

(C) Candidate Species that the U.S. Fish and Wildlife Service is considering for listing as endangered or threatened status, but for which there are no published rules. These species have no formal protection according to the Endangered Species Act. This listing is further broken down into two categories based on level of knowledge available on the species:

Category 1

Species for which there is currently substantial information on biological vulnerability, relating to autoecology and distribution, and threat(s) to support the appropriateness of proposing to list the species as endangered or threatened.

Category 2

Species for which information now in the possession of the U.S. Fish and Wildlife Service indicates that proposing to list them as endangered or threatened is possibly appropriate, but for which substantial data on biological vulnerability and threat(s) are not currently known or on file to support the immediate preparation of rules.

Category 3

Non-candidate species previously considered candidates or included on past lists:

3a extinct

3b taxonomically invalid or not meeting the definition of a species

3c too widespread or not threatedned at this time.

Table II-C-4
Sensitive Animals In The Lancaster Area

Common Name	Scientific Name	State Status	Federal Status
MAMMALS			
Mohave ground squirrel	*Spermophilus mohavensis*	Threatened	Candidate 2
REPTILES			
desert tortoise	*Gopheris agassizi*	Threatened	Endangered (Listed)
San Diego horned lizard	*Phrynosoma coronatum blainvillei*	Species of Special Concern - Definitely in decline	Candidate 2
BIRDS			
California condor	*Gymnogyps californianus*	Endangered (remaining individuals are part of a captive breeding program)	Endangered
prairie falcon	*Falco mexicanus*	Species of Special Concern - Vulnerable to extirpation due to small natural range	Watch List 4
Cooper's hawk	*Accipiter cooperii*	Species of Special Concern - Vulnerable to extirpation due to small natural range	
Swainson's hawk	*Buteo swainsoni*	Threatened	Candidate 2
Le Conte's thrasher	*Toxostoma lecontei*	Species of Special Concern - Vulnerable to extirpation due to small natural range	
yellow warbler	*Dendroica petehia brewsteri*	Species of Special Concern - Definitely in Decline	
willow flycatcher	*Empidonax tailii*	Species of Special Concern - Vulnerable to extirpation due to small natural range	
burrowing owl	*Athene cunicularia*	Species of Special Concern	
short-eared owl	*Asio flamineus*	Species of Special Concern	
black-shouldered kite	*Elanus caeruleus*	*	
white-faced ibis	*Plegadis chihi*	Species of Special Concern	Candidate 2
California gull	*Larus californicus*	Species of Special Concern	
tri-colored blackbird	*Agelaius tricolor*		Candidate 2

Source: California Department of Fish and Game, Natural Diversity Data Base, 1990, and Tierra Madre Consultants, Inc. Survey, October, 1991.

* Taxa listed with an asterisk (*) fall into one or more of the following categories:
- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines.
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range.
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California.
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands).

In response to a demand for information and/or guidance on compliance with the Endangered Species Act, the U.S. Fish and Wildlife Service has developed procedures for surveys within the range of the desert tortoise. Such surveys provide technical assistance to entities to determine the presence or absence of this animal, and thus avoid "take" of the desert tortoise. Where avoidance is not possible, surveys can provide information from which a project proponent can develop a "conservation plan" with guidance from the Fish and Wildlife Service. A conservation plan is the primary component of a Section 10 (a) permit application intended to obtain the necessary authorization to "take" a federally listed species as specified in the Endangered Species Act. While the actual preparation of a survey is not required by Federal law, their information would help a project proponent avoid potential "take" of the desert tortoise, an act prohibited by Federal law.

Survey procedures are subject to revision as new information becomes available. Before initiating surveys, proponents should check with the Fish and Wildlife Service at (805) 644-1766 to verify current survey methods.

The City of Lancaster and its General Plan study area are within the historical range of the desert tortoise, although much of the land has a "reduced" or "low" probability of supporting the species, due to past disturbance of native habitat. A survey conducted by Tierra Madre Consultants, Inc. (October 1991) during the spring of 1991 determined that desert tortoises are at extremely low density levels within the planning area north of the City limits, and may be extirpated from the area.

California Condor *(Gymnogyps californianus)* Presently considered endangered by the state and federal government, this prehistoric bird used to range over most of California. However, it became virtually extinct during the 1980s. By 1986, there were only a handful left in the Los Padres Forest. Scientists decided to collect all of the remaining adults in the hope of raising eggs in captivity for eventual release back into the wild. This program is ongoing at the San Diego and Los Angeles Zoos, and is starting to increase the California Condor population. Although its historical range included the Antelope Valley, is not now present, and it will be decades before these ancient birds will again frequent this area. In 1989, Andean condors were released by the state to "hold" the habitat area until the local species could reestablish itself.

Mohave Ground Squirrel *(Spermophilus mohavensis)* This species is a federal Category 2 species (under study for possible classification as endangered), and is listed by the State as Threatened. The California Department of Fish and Game requires a 2081 permit for "take" of Mohave ground squirrels. Since the squirrel is not federally listed, a federal 10(a) permit is not required. The Natural Diversity Data Base indicates this species has been previously observed: 1) in desert scrub and woodland habitats, generally between Avenues K and L and 10th Street East and Division Street, and 2) in the Lake Los Angeles area (no years given). In the past, development proposed within its range was required to provide for a trapping program by a pre-qualified biologist familiar with the species.

Prior to the 1991 spring season, the California Department of Fish and Game indicated that a trapping survey is no longer acceptable. Lands within the historic range of the squirrel must be evaluated using methodology developed by the Department of Fish and Game (CDFG, 1991). The evaluation quantitatively estimates the levels of ten different human impacts on the study site and determines a Cumulative Impact Rating (CIR) value. The CIR value is then used

by the CDFG to determine if there is the need to acquire compensation lands to replace those lands being lost to a proposed project. Compensation may range from no acquisition of lands to five acres acquired for each acre lost, depending on the CIR value and other information. The CDFG makes this determination on a case-by-case basis.

Survey procedures are subject to revision as new information becomes available. Before initiating surveys, proponents should check with the state Department of Fish and Game at (213) 590-5193 to verify current survey methods.

San Diego Horned Lizard *(Phrynosoma coranatum blanvillii)* This species is classified as a Category 2 species by the U.S. Fish and Wildlife Service. According to the Natural Diversity Data Base, it is found in desert wash areas with loose blowing sand, and has been observed in the Amargosa Creek Wash, and southeast of Avenue L and 10th Street West.

Desert Reptile Assemblage The Desert Iguana *(Dipsosaurus dorsalis)*; Collared Lizard *(Crotaphytus collaris)*; Desert Horned Lizard *(Phrynosoma platyrhinos)*; the Long-nosed leopard lizard *(Gambelier wislizenii)*; and the Desert Tortoise constitute a Desert Reptile Assemblage which emphasizes the particular type of habitat shared by these species. This habitat type is most commonly found east of the City in undisturbed desert scrub or woodland areas.

Short-eared Owl *(Asio Flammeus)* This nocturnal raptor does not have any official state or federal listing, but is protected from hunting or trapping by the State Fish and Game laws covering raptors. The Natural Diversity Data Base reports that this species has been found northeast of the intersection of Avenue C and 50th Street East. This species has been sighted locally near the Piute Ponds, within the boundaries of Edwards AFB.

Swainson's Hawk *(Buteo Swainsoni)* The Natural Diversity Data Base indicated that there were reported sightings of a Swainson's Hawk nest immediately east (outside) of the study area. There have also been local sightings of this scarce migrant in the Antelope Acres area. This species is on the federal Category 2 list, and is considered Threatened by the state.

Prairie Falcon *(Falco mexicanus)* This raptor is considered "Rare" by the California Department of Fish and Game. It should be noted that the Prairie falcon, like all raptoral birds, is protected against hunting under state law. Its foraging range is throughout the study area during fall and winter, but it most likely nests in cliffs or buttes adjacent to open desert areas.

Prairie Falcon Assemblage The state has designated three protected species that share similar habitat (Prairie falcon, Collared lizard, and California Condor), as the "Prairie Falcon Assemblage." This assemblage can occur in deserts and mountains throughout the study area. This designation emphases the concept of protecting several species, instead of individual species, in a given area.

Other sensitive species that have been observed during the Tierra Madre Consultants, Inc. survey (October 1991) and other surveys include Cooper's hawk, Le Conte's thrasher, yellow warbler, willow fly catcher, burrowing owl, black-shouldered kite, white-faced ibis, California gull, and tri-colored blackbird. The status of these species is shown in Table II-C-4.

f. Significant Ecological Areas (SEAs)

In 1976, the Los Angeles County Regional Planning Office, in conjunction with the County Parks Department, designated over 60 Significant Ecological Areas (SEAs) throughout the County. Land planning within these areas is monitored by the Significant Ecological Area Technical Advisory Committee (SEATAC). This County advisory committee has categorized the SEAs into the following classifications:

SEA Class	Description
1	Habitat for rare, threatened, or endangered plants or animals. (state or federal).
2	Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind, or are restricted in distribution on a regional basis.
3	Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind, or are restricted distribution in Los Angeles County.
4	Habitat that, at some point in the life cycle of a species or group of species, serves as a concentrated breeding, feeding, resting, or migrating ground, and is limited in availability.
5	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitation, or they represent an unusual variation in a population or community.
6	Areas important as habitat for game species or fisheries.
7	Areas that would provide for the preservation of relatively undisturbed examples of the natural biotic communities in Los Angeles County.
8	Special Areas - Areas that are worthy of inclusion, but do not fit any of the other criteria.

Once land within SEAs has been incorporated into a city, these SEA designations no longer have any legal requirements. However, the City of Lancaster will examine each SEA and determine what the appropriate land uses should be based on the environmental resources of each area. Although there are no SEAs within the City limits, there are five SEAs located within the General Plan study area. These are shown in Figure II-C-1 and described as follows:

- *Edwards Air Force Base (SEA 47 - Class 1)* The base supports the endangered Mojave Spineflower and undisturbed stands of native mesquite, creosote bush scrub, and alkali sink vegetation. SEATAC recommends that this area have restricted access (as it does now because of military activity), and that travel be confined to existing roads.

- *Little Rock Wash (SEA 49 - Class 4)* This is the largest undisturbed desert wash habitat within the study area, and functions as a wildlife migration corridor. The SEATAC recommends that no facilities be located near the desert riparian woodland vegetation. They suggest that medium intensity recreational uses are most appropriate, but that vehicles be prohibited from the wash itself.

- *Rosamond Lake (SEA 50 - Class 2)* This dry alkaline lake is part of Edwards AFB, and supports several sensitive biological species. It is considered a unique biological resource, as it contains expanses of undisturbed shadscale scrub and alkali sink vegetation. SEATAC recommends only moderate recreational activities and restricted vehicular access, especially in areas with alkali flats.

- *Fairmont-Antelope Buttes (SEA 57 - Class 4)* These steep uplands represent significant wintering and roosting grounds for raptors since they are adjacent to agricultural fields, as well as the Poppy Preserve. SEATAC has designated the SEA as encompassing both of the buttes, as well as the Poppy Preserve, to provide an adequate buffer for the raptors.

- *Joshua Tree Woodland Habitat (SEA 60 - Class 7)* At the time of the SEA survey by the County (1975-78), there were extensive stands of undisturbed Joshua trees located in the northwest corner of the study area, between Avenues B and E, from 140th Street East to 200th Street East. Since that time, these stands have been disturbed by various human activities, including agriculture and off-road vehicles. The original location of this SEA is shown in Figure II-C-1.

- *Portal Ridge-Libre Mountain (SEA 58 - Class 5)* Portal Ridge, representing the northern-most foothills of the San Gabriel Mountains, is outside the General Plan study area, located immediately southwest of the general plan study area. This area contains undisturbed expanses of riparian and inland sage scrub vegetation that also support a wide variety of wildlife. SEATAC designated this area as an important transmontane area, and recommended that development of this area occur only where it already exists, with an emphasis on maintaining water features, such as Elizabeth Lake and Fairmont Reservoir. Animals with large ranges, including raptoral birds and large mammals, undoubtedly utilize this area for foraging, in addition to the desert floor and neighboring uplands.

g. Preservation of Natural Vegetation

The City's original General Plan, adopted in 1980, established a series of Vegetation Management Areas in the northwest, southwest, north central, and south central areas of the City, as designated on the original General Plan Map.

In 1982, the City financed a Vegetation Management Area Study of the four square mile area between Avenues K and M and 20th and 40th Streets West in response to citizen concerns about the natural vegetation of the area which was

not identified in the General Plan. This study identified the Prime Desert Woodlands and Desert Woodlands in this area of the City. In 1983, staff prepared a policy to protect the Prime Desert Woodlands at the direction of the City Council. The policy was later incorporated into the General Plan (12/83) as Policy 14 under Issue 1 in the Environmental Resources Management Element.

In 1988, the City funded the Prime Desert Woodland Sites Policy Study which thoroughly examined the conditions on each of the five sites identified in the 1982 Vegetation Management Area Study. On March 20, 1989, the City Council voted to accept the report with the provision that first priority for acquisition be Site 1 (near Rawley Duntley Park).

In December of 1990, the City acquired 15 acres of land in the Site 1 Prime Desert Woodland south of Rawley Duntley Park. Opportunities for additional acquisitions in this area are also being pursued.

The City of Lancaster Zoning Ordinance, Section 295, states that it is a policy of the City's General Plan to: "encourage the retention of Joshua Trees and California juniper as feasible and economically practical in residential, commercial, industrial, and public developments." According to the Response to Comments (number 17) for the "Final EIR on the In-Lieu Fee Ordinance for Specified Vegetative Management Areas..."while individual trees may be preserved in many locations, the result of the existing ordinance may be the reduction or fragmentation of areas needed to ensure continuance of the species. Therefore, stands of significant size and of sufficient ecological structure must be preserved to ensure continuance of the species in the Lancaster area. The more such stands are preserved, the greater the chances for continued vitality of the species in Lancaster."

2. ANALYSIS

a. Prime Desert Woodland Preservation

According to the Lancaster General Plan Community Issues Report, the protection and preservation of natural areas and the attendant wildlife is an important community concern. The Joshua tree is a symbol of this desert community, and both the desert woodland and scrub plant communities contain Joshua trees. However, Joshua trees are too isolated in desert scrub areas to be effectively protected, even though desert scrub is, by far, the most widespread desert plant assemblage.

Desert Woodlands containing California juniper and Joshua trees are a significant plant community in the Lancaster area. Only in desert woodlands are these species concentrated to the degree necessary for effective preservation. It will be most beneficial to these species to preserve smaller areas with dense assemblages of Desert Woodlands, rather than larger areas of desert scrub, despite the occurrence of isolated trees in these areas. It may, however, be useful to preserve areas of desert scrub adjacent to desert woodland areas as a buffer for the woodlands. These scrub areas could provide for visual continuity representative of the undisturbed desert. However, simply preserving Joshua trees may not be sufficient to preserve the desert ambiance of this area.

The City should identify all remaining significant Desert Woodland areas (with juniper and Joshua trees) within the study area, especially if any are outside of the established Prime Desert Woodland areas. Appropriate steps should be taken to protect them on an interim basis until a comprehensive study can be prepared.

Such a study could be done either by the City or in cooperation with local educational or conservation organizations. It will be most effective to protect additional desert woodland areas that meet the "prime" designation by developing an area-wide plan, rather than through piecemeal protection, as with the previous Vegetative Management ordinance.

This plant community is considered extremely sensitive within the Antelope Valley, and should be preserved (at least temporarily) if significant, healthy stands (other than those identified in the Vegetative Management Area Study) are still located within the study area. The City has adopted a new Vegetative Management ordinance that takes a more comprehensive approach to the preservation of prime desert woodland areas; however, the City may still want to consider the following issues regarding the fee structure for this program: 1) acknowledging the area-wide responsibility for, and contribution to, preservation (such as through a flat fee); 2) individual impacts of removing various numbers of trees from individual properties outside of specified areas (e.g. site with more trees may have to contribute more for preservation).

b. Additional Preserve Areas

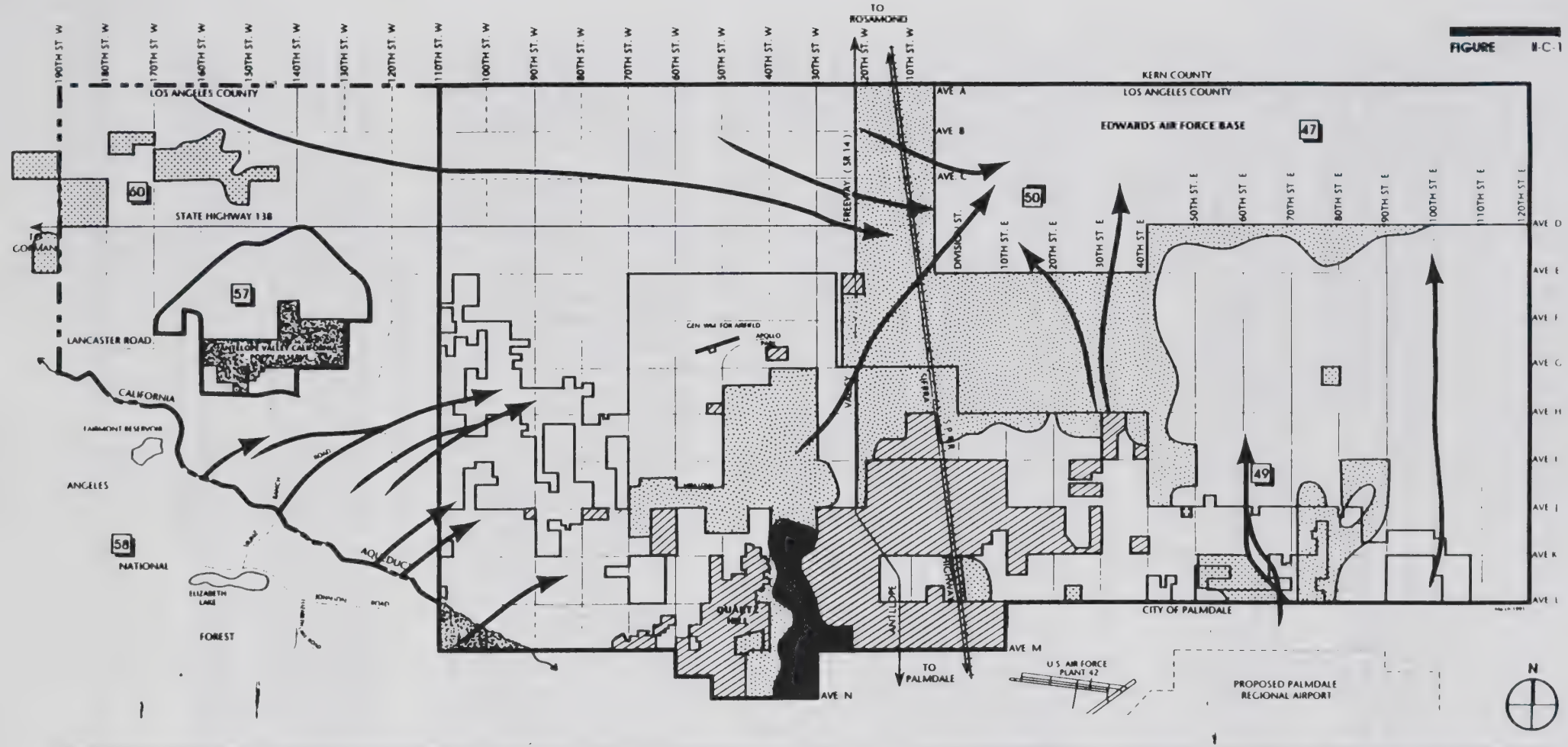
A major consideration in identifying additional areas to preserve biological resources would be to examine the "Significant Ecological Areas" already identified by Los Angeles County. In addition, any preserve areas should be connected to surrounding or nearby natural or open space areas with an integrated trail system to allow for movement of wildlife. Multi-use trails should also connect to other local or regional open space areas, such as the national forest or the City of Palmdale. It will also be essential to provide wildlife migration corridors along the southwestern boundary of the study area to allow access in and out of the national forest.

Desert Woodlands It may be possible to preserve a new area of desert woodland within the Significant Ecological Area #60. However, this area is at the far western end of the study area, outside of the City boundaries, and its condition may have declined since it was designated. It should be studied as a potential additional preserve area for desert woodlands. Other areas selected for preservation will need to be addressed on an individual basis within the City's jurisdiction.

Poppy Preserve This area is already an established Significant Ecological Area (#57). Both Antelope and Fairmont buttes, along with any additional intervening land, should be preserved to provide an appropriate buffer around the California Poppy Reserve to best utilize its biological, as well as scenic, resources (as shown in Figure II-C-1. If left undisturbed, this area will be able to provide raptor nesting and foraging habitat. A wildlife corridor should also be considered, possibly in conjunction with multi-use trails or open space easements, to connect the Poppy Preserve with the national forest land to the southwest.

Alkali Sinks If possible, one or more significant alkali sink areas should be incorporated into a woodland preserve area to protect these unique resources and the sensitive plants and animals they support. However, most of the significant alkali sinks are associated with Rosamond Lake, within Edwards AFB.

FIGURE II-C-1



BIOLOGICAL RESOURCES

PLANNING NETWORK

- DESERT SCRUB
- UPLAND SCRUB
- DISTURBED LANDS (Agriculture/Grassland)
- DISTURBED LANDS (Urbanized/Weedy)
- DESERT WOODLAND
- JOSHUA TREE WOODLAND
- DESERT WASHES

NOTE: Refer to Tierra Madre Consultants, Inc. survey (October 1991) for detailed information on plants and animals observed within the study area during the Spring of 1991.

SIGNIFICANT ECOLOGICAL AREAS
(Los Angeles County designations)

47	Edwards A.F.B.
49	Little Rock Wash
50	Rosamond Lake
57	Fairmont/Antelope Buttes
58	Portal Ridge (Desert-Montaine Transect)
60	Joshua Tree Woodland Habitat

SOURCE: Compilation of local Environmental Impact Reports and the City of Lancaster Prime Desert Woodland Report.

CITY OF LANCASTER
GENERAL PLAN

Little Rock Wash (Desert Wash) Some or all of Little Rock Wash within the study area, as well as the desert woodland immediately southwest of the wash, should be planned as an open space desert park to protect the sensitive plants and animals associated with these habitats. This area was previously identified as a Significant Ecological Area (#49), and would be appropriate as an east area park, prior to urbanization of this area.

Riparian Wetlands The City should identify all "permanent" or seasonal bodies of water in the study area. These areas should be protected from development, or development should be planned to allow these areas to continue being used by local birds and mammals. Wildlife corridors should be included to allow movement in and out of these areas. They should also be adequately buffered from proximate human activity. Creating new riparian communities may have a significant impact on native vegetation and climate.

c. Multi-Species Habitat Conservation Plan

The California Department of Fish and Game is beginning to encourage cities and other agencies to form assessment districts to fund long-range preservation of sensitive biological habitats. In the past, regional preserve programs were designed to protect individual species. However, the Department of Fish and Game has recently begun supporting local, and even private, agencies in establishing multi-species Habitat Conservation Plans to protect many sensitive species in the same area. Such a plan could include a number of agencies, such as the Nature Conservancy of the County of Los Angeles, the Department of Fish and Game, the U.S. Fish and Wildlife Service, the City of Palmdale, etc. A comprehensive approach to preserving sensitive biotic resources will facilitate the development process, since it is proactive, and does not depend on the designation of new endangered species. Local jurisdictions (cities, counties) can establish a preserve area supported by mitigation fees, local bonding, or other funding mechanisms. The establishment of any preserve area is best implemented by coordinating with those agencies responsible for providing or protecting scenic and other resources.

The Bureau of Land Management is attempting to set up a "multi-species" Habitat Conservation Plan in the western Mojave desert (including Lancaster) to protect both the desert tortoise and the Mojave ground squirrel. This program will be developed over the next two years, and would eventually eliminate the need for individual surveys for these species. The goal of this program is to eventually establish a permanent preserve; lands outside of the preserve can then be developed. The City should cooperate with the Bureau as much as possible. It may even be possible to include other species with overlapping or similar habitats (e.g. desert reptiles, prairie falcon assemblage, alkali Mariposa lily, Mojave spineflower, Joshua trees, California juniper, Mojave ground squirrel, San Diego horned lizard, short-eared owl, burrowing owl, and all local and migratory raptors).

d. Planning/Development Review

The desert plant communities (scrub, woodland) are relatively fragile and, thus, sensitive to human disturbance (e.g., the invasion of weedy species). Careful planning must be employed in areas where native plant communities are preserved adjacent to developed areas. Otherwise, native plants and animals will be reduced by the introduction of non-native species and human activity.

Any future proposed development must address how endangered and threatened species, as identified by the California Department of Fish and Game and the U.S. Fish and Wildlife Service, will be protected.

e. Landscaping Palette

To complement the desert scene, an appropriate landscaping palette should be developed to emphasize desert species, such as blue palo verde, salt bush, bitter cherry, hymenoclea, yellow malicothrix (as groundcover), creosote bush, and willow (in limited applications). Other desert-adapted or drought-tolerant (xeriscape) plants should be investigated to determine which are appropriate for the City. Certain plants, especially trees, such as Washingtonia palm and date palms, should be discouraged, or only allowed in selected locations, to prevent a proliferation of shapes incongruous with the specialized Mojave desert scene of Lancaster.

f. Additional Information/Studies

Although the Tierra Madre survey provided information on a significant portion of the study area, the City should continue to collect available data as necessary, and encourage appropriate agencies to study the actual, as opposed to the potential, distribution of sensitive species within the study area.

The City may also wish to work closely with local educational and private researchers to coordinate and summarize the status, location, etc. for sensitive species within the study area. This will identify overlapping habitat areas for sensitive species, and provide a more regional emphasis on long-range planning for these species.

D. LAND RESOURCES

1. EXISTING SETTING

a. Landforms and Topography

The topography of the City and its General Plan study area generally slopes up to the southwest, with elevations ranging from approximately 2,300 feet in the northeast to 3,500 feet in the southwest. The overall topography of the City is somewhat flat. Major topographic features include Quartz Hill located in the southern portion of the study area, and the Fairmont and Antelope Buttes located west of 110th West. Figure II-D-1 shows the topographic contours and significant landforms within the study area.

b. Soil Associations and Types

The United States Department of Agriculture and Soil Survey for the Antelope Valley Area indicates that the City and its study area are located within the western part of the Mojave Desert, which is comprised of alluvial fans, terraces, and upland regions generally associated with the Mojave Desert. Figure II-D-2 identifies the location of these soil types in relation to the study area. Most of the Mojave Desert region is a high basin that includes remnants of older material that occur as scattered buttes. The alluvial fans and terrace region in the western and southwestern parts of Antelope Valley is made up of deposited stream materials. The upland region consists of foothills, mountains, ridges, fault scarps, and associated valley floors of the nearby San Gabriel Mountains.

Generally, the soils within the Lancaster study area have resulted from the uplift of the San Gabriel Mountains and their subsequent erosion. The alluvial deposits found within the foothill region consist of coarse-grained sediment intermingled with organic matter with depositions of finer-grained silts and clays in areas further from the mountains.

The City and its study area are comprised of six (6) soil associations from the aforementioned regions. A soil association is a landscape that has a distinctive, proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil. In general, upland soils (Vista-Amargosa Associations) are located Southwest of the California Aqueduct, in the extreme southwest corner of the study area. The alluvial fan and terrace soils (Hanford, Ramona, Greenfield associations) are found in the lower foothill and basin lands in the western and southwestern portions of the study area. In addition, there are four separate associations of desert soils, all located in the central and eastern portions of the study area (See Figure II-D-2). These associations include the Hesperia-Rosamond-Cajon, Pond-Tray-Oban, Sunrise, and Adelanto. These soils, stable and well drained, are most conducive for development and are generally located in the far eastern and far western portions of the study area. The following more extensively describes those soil associations which comprise the City and its study area:

- *Hesperia-Rosamond-Cajon Association* These soils are very deep and are moderately well drained to excessively drained. They are formed in alluvium derived from granitic rock. Slopes range from 0 to 15 percent. These soils are characterized by good to fair top soil, low water-holding capacity for irrigation, slow permeability, and low shrink-swell potential. Depth to bedrock is five feet or greater.

- *Pond-Tray-Oban Association* These soils are found in basins north of Lancaster, and are very deep and moderately well drained. They contain slight to moderate amounts of soluble salts and alkali. These soils are formed in alluvium derived from granitic rock, and have slopes of 0 to 2 percent. Soils of this association are characterized by poor top soil, slow permeability, high water-holding capacity for irrigation, and low to high shrink-swell potential. Depth to bedrock is five feet or greater.

- *Sunrise Association* These soils are moderately well drained, and are shallow to moderately deep. The soils are also moderately saline-alkali, and are formed in alluvium derived from granitic rock. Slopes range from 0 to 2 percent. The soils are characterized by poor top soil, moderate water holding capacity for irrigation, moderately slow permeability, and low to moderate shrink-swell potential. Depth to bedrock is five feet or greater.

- *Adelanto Association* These soils are very deep, well drained, and are formed in alluvium derived from granitic rock. Slopes range from 0 to 5 percent. The soils are characterized by poor top soil, favorable potential for irrigation, moderate permeability, and low shrink-swell potential. Depth to bedrock is five feet or greater.

- *Hanford-Ramona-Greenfield Association* These soils are very deep, well drained, and formed in alluvium from granitic rock. Slopes range from 0 to 30 percent. The soils are characterized by fair top soil, moderately rapid permeability, moderate water holding capability for irrigation, and low shrink-swell potential. Depth to bedrock is five feet or greater.

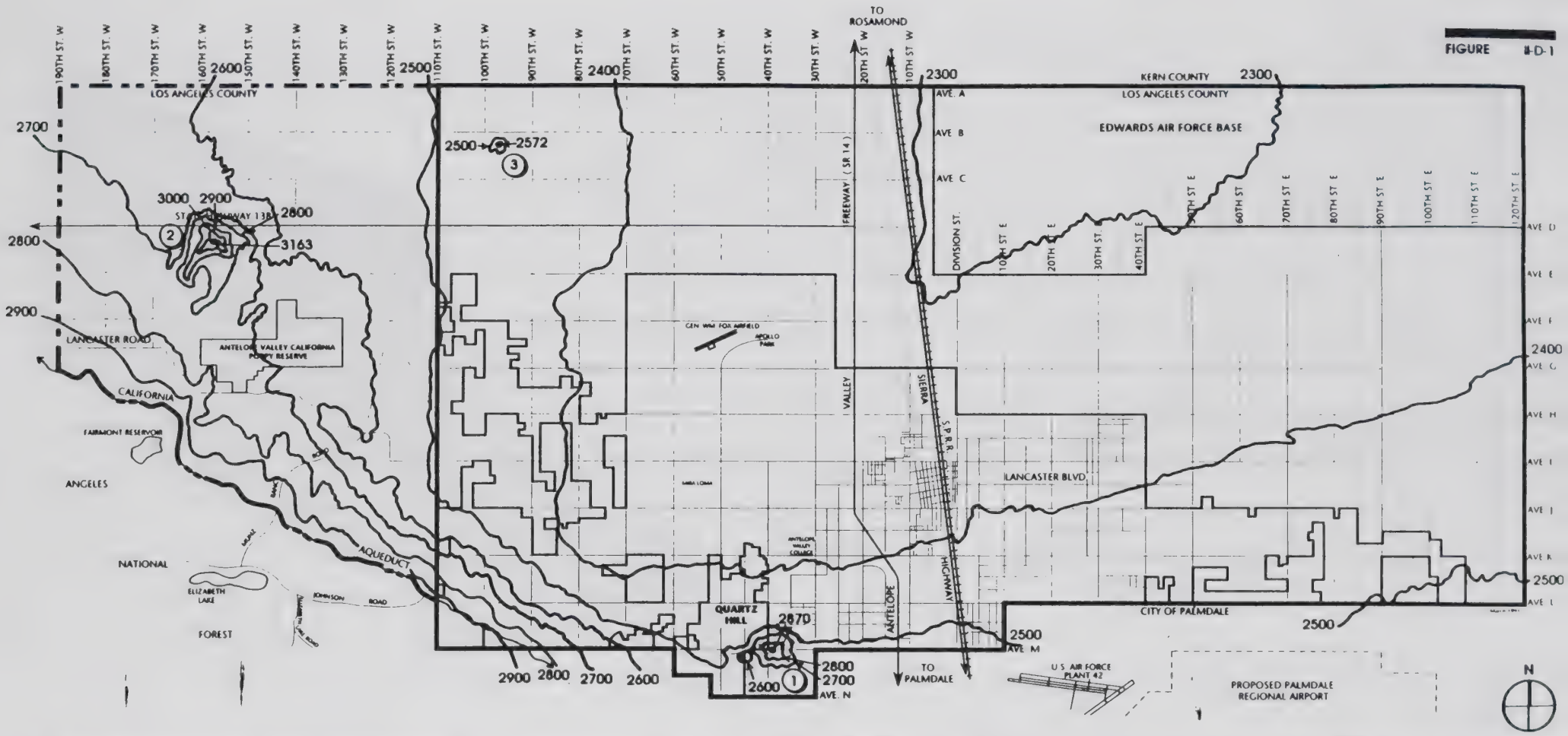
- *Vista-Amargosa Association* These soils are moderately deep to shallow over granite, and are well drained to excessively drained. Slopes range from 9 to 55 percent. The soils are characterized by fair top soil, moderately rapid permeability, low water holding capability for irrigation, and low shrink-swell potential. The depth to bedrock is two to three feet, which is considered shallow, and therefore represents a potential constraint for future development.

c. Shrink-Swell Potential

Shrink-swell potential of soils is defined as the relative measure of the propensity of the soil to swell when wet and shrink when dry. The amount of swell is related primarily to the presence and amount of certain types of clay. Three ranges of shrink-swell potential have been delineated by the Soil Conservation Service: low, moderate, and high, and are depicted on Figure II-D-3. Highly expansive soils can cause substantial damage to building foundations, highways and other surface structures. However, these effects can be minimized or eliminated (particularly in areas of moderate shrink-swell), provided that structures are engineered in accordance with existing building code requirements. Construction costs, consequently, will be higher in such areas.

Most of the City of Lancaster is characterized by soils of low shrink-swell potential which do not represent a problem for foundation construction. An exception is the area north of Lancaster Boulevard and west of 10th Street West, where the soils are classified as highly expansive and warrant special design considerations.

FIGURE II-D-1



PLANNING NETWORK

TOPOGRAPHIC CONTOUR

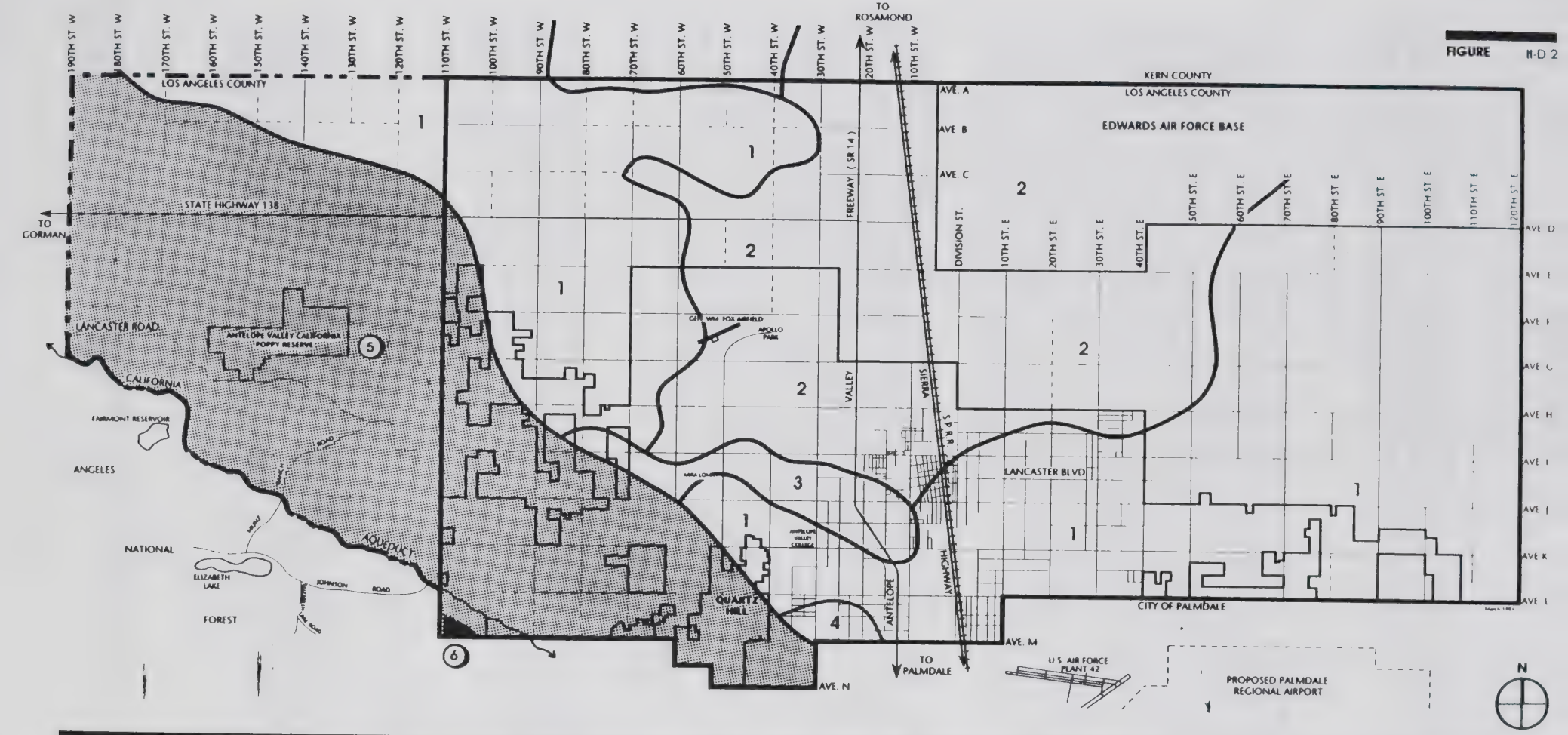
SIGNIFICANT TOPOGRAPHIC FEATURES
1 Quartz Hill
2 Fairmont/Antelope Buttes (Poppy Reserve)
3 Little Buttes

SOURCE: USGS Topo Maps

AREA TOPOGRAPHY

CITY OF LANCASTER
GENERAL PLAN

FIGURE N-D 2



PLANNING NETWORK

DESERT SOILS ASSOCIATIONS

1. Hesperia-Rosamond-Cajon
2. Pond-Tray-Oban
3. Sunrise
4. Adelanto

ALLUVIAL FAN AND TERRACE SOILS

5. Hanford-Ramona-Greenfield

UPLAND SOILS ASSOCIATION

6. Vista-Amargosa

SOURCE: Soil Survey of the Antelope Valley Area, California,

SOIL ASSOCIATIONS

CITY OF LANCASTER
GENERAL PLAN

Shrink-swell conditions in the study area are similar to that of the City. Most areas exhibit low potential. High shrink-swell potential is found in the general area between Avenue I and Avenue J to 75th Street West, and north of the City between 40th Street West and Sierra Highway.

d. Subsidence

Portions of the City and study area are characterized by soils which are "sinking" or subsiding. Over the years, several areas in the City, as well as areas throughout the Antelope Valley, have experienced various degrees of soil subsidence. The resulting fissures, which seem to occur primarily in desert areas with dry, brittle ground. The ground at Edwards Air Force Base is a hard clay material, while the problem areas in Lancaster have an almost concrete-like material near the surface called caliche, a cemented deposit of calcium carbonate. Caliche most often underlies soils within the Sunrise association. Depth to the caliche ranges from 10 to 39 inches, according to the Department of Agriculture. These types of soils have poor bearing strength, and generally cannot support foundations without special design or construction techniques. Within the Sunrise soils, caliche is a pale-yellow, calcareous material with heavy loam and cemented deposits of calcium carbonate. Sunrise soils are located in the extreme north-central portion of the study area, and in the west-central portion, near the Mira Loma Detention Facility (see Figure II-D-2).

During aerial geologic reconnaissance by an engineering consultant in December 1990, over 70 large cracks were charted in a 10-square mile area of undeveloped land in Lancaster. Other fissures are likely present, but are masked by a veneer of windblown sand and deposits. Dozens more have been found on the dry lake bed near Edwards Air Force Base. One fissure is half a mile long, up to 12 feet deep and 4 feet wide forcing the closure of a runway. After rains in late February 1991, another large fissure breached the end of a second runway, although it has remained open. At several locations, sink holes, collapsed portions of subterranean cavities, were also associated with the fissures (Geolabs-Westlake Village 1990). Of particular concern are the reported cracks on the future High Desert Hospital complex site. Other fissures are located near the site where the state has begun building the new prison. The report to the City called these cracks "a significant constraint and potential hazard to land development" (Los Angeles Times, 1991). Fissuring identified in the report is illustrated in Figure II-D-4.

Geologists believe that the fissures are the result of excessive groundwater withdrawal in recent decades. It is believed that when water is drawn out of the earth hundreds of feet below ground, the soil begins to dry and grow more compact. Because those dry layers take up less space, gravity causes the soils above to settle, causing the subsidence and fissuring at the surface.

e. Open Space Inventory

(1) Open Space Lands for the Preservation of Natural Resources

In 1976, the County of Los Angeles designated areas within the study area as Significant Ecological Areas (SEAs). These areas contain important biological resources (see Biology Section II-C). The County's SEA Technical Advisory Committee recommends that these areas be preserved according to the current Antelope Valley Area Plan. Table II-D-1 lists the SEAs in Lancaster.

The Desert Woodland community is a group of native plants consisting primarily of Joshua trees and California Junipers. Due to accelerated urban expansion in the desert regions, large dense stands of this habitat are becoming scarce, especially in the western Antelope Valley. Desert Woodlands are valued for their visual effects on the landscape and as habitat for wildlife. Joshua Tree Woodland Habitat is a County designated Significant Ecological Area (SEA) that supports an excellent example of Joshua Tree Woodland. This area is generally located between 150th Street West and 200th Street West and Avenue B through Avenue D. The City of Lancaster has designated certain areas as Prime Desert Woodland to be protected via acquisition and the development approval process. The term "Prime Desert Woodland" is used by the City of Lancaster to designate high quality assemblages of desert woodland plants, visually dominated by the Joshua Tree and the California Juniper. Five sites were identified, totaling approximately 313 acres in the southwestern part of the City, bounded by Avenue J and Avenue N, and lying between 30th and 40th Streets West. However, two of the sites (2,3) have not been recommended for preservation by the Prime Desert Woodland Sites Policy Study, due primarily to their small size.

The Antelope Valley California Poppy Reserve is a 1,700 acre state park located west of Lancaster between 130th Street West and 160th Street West and approximately Avenue F and Avenue G. The Reserve was created to preserve the California Poppies in the Antelope Valley.

Table II-D-1
Lancaster Significant Ecological Areas

Edwards Air Force Base	SEA 47
Portal Ridge	SEA 58
Little Rock Wash	SEA 49
Fairmont/Antelope Buttes (Poppy Preserve)	SEA 57
Joshua Tree Woodlands	SEA 60
Rosamond Lake	SEA 50

Source: County of Los Angeles General Plan Background Report, 1987.

(2) Open Space Lands for Outdoor Recreation Activity

The Lancaster study area contains various open space land uses available for outdoor recreation activity. The abundance of open space is ideal for hot air ballooning and gliding, two popular sports in the Antelope Valley. South of the City is the California Aqueduct, open for fishing. In the Lancaster vicinity are five city parks, two county parks, and two state parks. In addition, two private golf courses are located in the general area (See Figure II-D-5). The nearby Angeles National Forest also affords residents the opportunity to experience an unspoiled natural environment.

FIGURE II-D-3

SHRINK-SWELL POTENTIAL OF SOILS

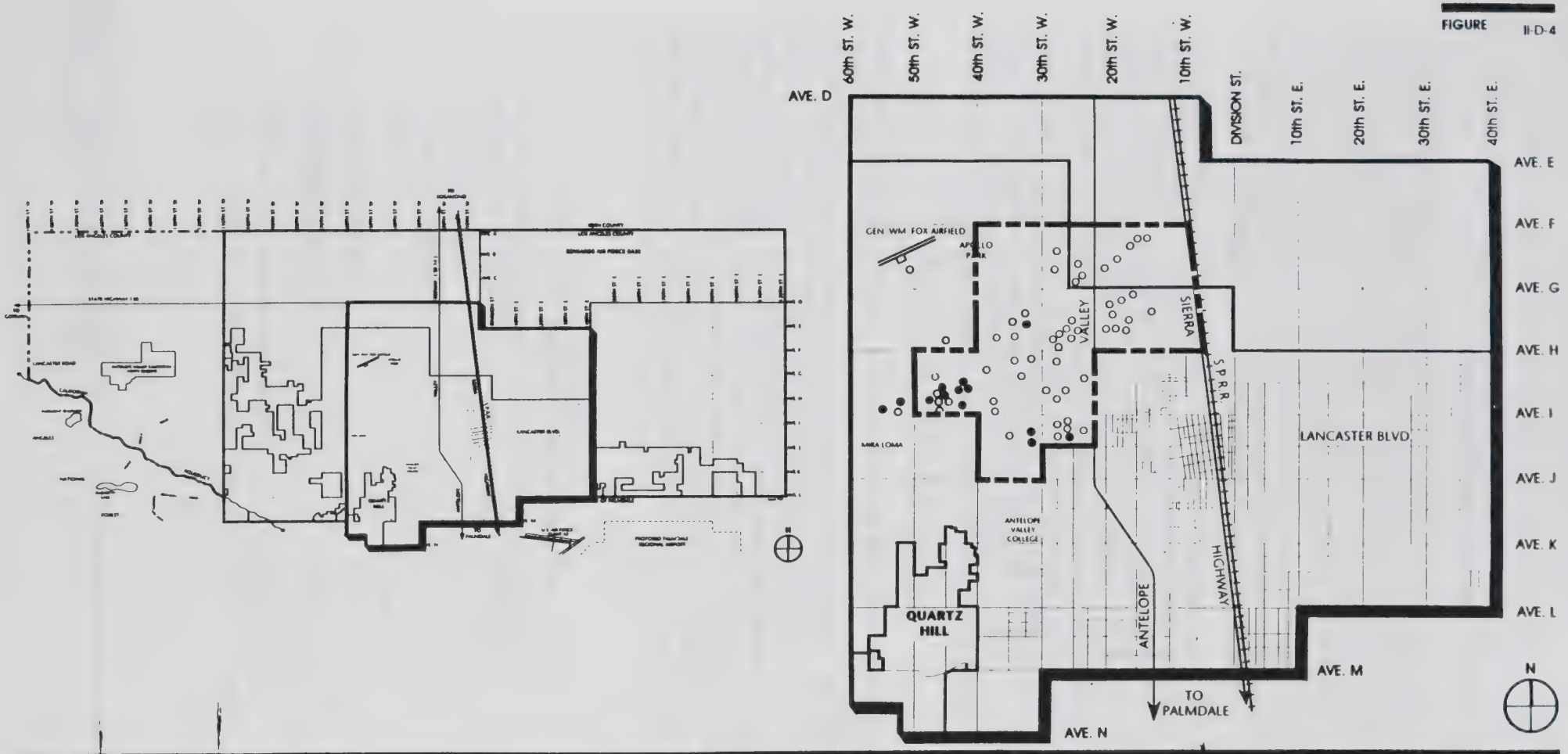
PLANNING NETWORK

- LOW
- MODERATE
- HIGH
- EDWARDS AIR FORCE BASE

SOURCE: United States Department of Agriculture, Soil Conservation Service, 1969.

CITY OF LANCASTER
GENERAL PLAN

FIGURE II-D-4



FISSURE AND SINKHOLE LOCATIONS

PLANNING NETWORK

Fissure Study Area

Approximate Locations of Sinkholes

Approximate Locations of Major Fissures

SOURCE: Geolabs-Westlake Village, 1990.

CITY OF LANCASTER
GENERAL PLAN

(3) Open Space Lands for Public Health and Safety

Open space lands in Lancaster include lands along highway rights-of-way, lands designated for drainage or floodplain management, noise management areas, power line easements, recreational trails, and hillside management areas. These lands sometimes overlap with areas preserved for resource protection and recreation. Drainage ditches and water basins used as trails and other related activities are examples of open space use overlap. The Antelope Valley Area Plan, Hazards and Resources Map identifies the locations of these areas. The Antelope Valley Trails Council has proposed a trail network linking open space areas. This system would include hiking, equestrian, and bicycle paths.

Two major washes, the Little Rock and Amargosa Washes, traverse over the eastern portion of the study area. The washes then empty into Rosamond Lake, which is located on Edwards Air Force Base. Noise management areas are established along the military flight corridor for Edwards Air Force Base, located along the northern boundary of the study area, east of 40th Street East. Noise areas are also found along the southern portion of the study area near Air Force Plant 42 (Palmdale Regional Airport). Three large power line easements are located on the western side of the study area; one runs south along 120th Street West until it reaches Avenue F, then bends and continues in a southeast direction, a second connects the Del Sur area extending southwest out of the study area, and a third extends in a southeast direction from 160th Street West.

f. Existing Agricultural Lands Inventory

Five categories of agricultural lands exist in the study area, according to the State Department of Conservation: prime farmland, farmland of statewide importance, grazing lands, unique farmland, and farmland of local importance. Although the State recognizes five different agricultural lands in the study area, very little, less than two percent (2%), is actually under cultivation (see Figure II-D-7). The cost of pumping water at deeper and deeper levels has caused the decline of agriculture in the Antelope Valley. Today, agriculture is a nominal part of the area's economy. Although these lands are identified as prime farmlands, without water the land is not viable for agriculture production. Table II-D-2 details the approximate acreage the State Department of Conservation has categorized in the study area, and Figure II-D-6 shows the location of these lands.

Table II-D-2
Important Agricultural Lands, 1986

Category	Acreage
Prime Farmlands	18,842
Statewide Importance	320
Grazing Lands	39,400
Unique Farmlands	147
Local Importance	8,576
Total	67,285

Source: California Department of Land Conservation, 1986.

g. Existing and Historical Agricultural Crops

The Antelope Valley's principal industry, from the 1870s to the 1950s, was agriculture. Prior to that period, only scattered farmsteads existed near the southern ridges along the San Andreas rift zone, with seasonal cattle grazing occurring in the west valley.

In 1887, the Wright Irrigation Act gave rural areas municipal-like power to construct or purchase and operate irrigation systems. This aided the formation of agricultural colonies and irrigation districts in the southern fringe. This Act, together with the influx of migrants to California and the introduction of the hydrostatic well, created the regional agricultural boom during that time period. After 1893, the region entered a dry cycle which destroyed thousands of acres of farm land in the west valley. Due to this extended drought condition, only 5,000 of the 15,000 acres of orchard lands (mainly almonds, olives, and prunes) still existed by 1910.

The modern agricultural pattern, which included wheat in the west valley, alfalfa around the central valley, and orchards in the southern portions, resulted because of soil limitations and a reliance on irrigation. When irrigation systems became more efficient, the region's agricultural area began to extend westward, away from existing artesian wells. This trend also continued due to the introduction of electricity and electric pumps. Orchards continued to be planted on the southern fringe slopes, principally around Quartz Hill and Littlerock. The Antelope Valley region remained an agricultural valley for the first half of this century. During the 1950s, agricultural cultivation began to decline as the cost of irrigation became prohibitively expensive.

Agricultural cultivation today is limited. The crops presently being cultivated in the Antelope Valley region include alfalfa, onions, barley, peaches, sweet corn, black-eyed peas, pumpkins, and watermelons. Most of the vacant areas of the City and its study area remain in uncultivated farmland and abandoned agricultural fields.

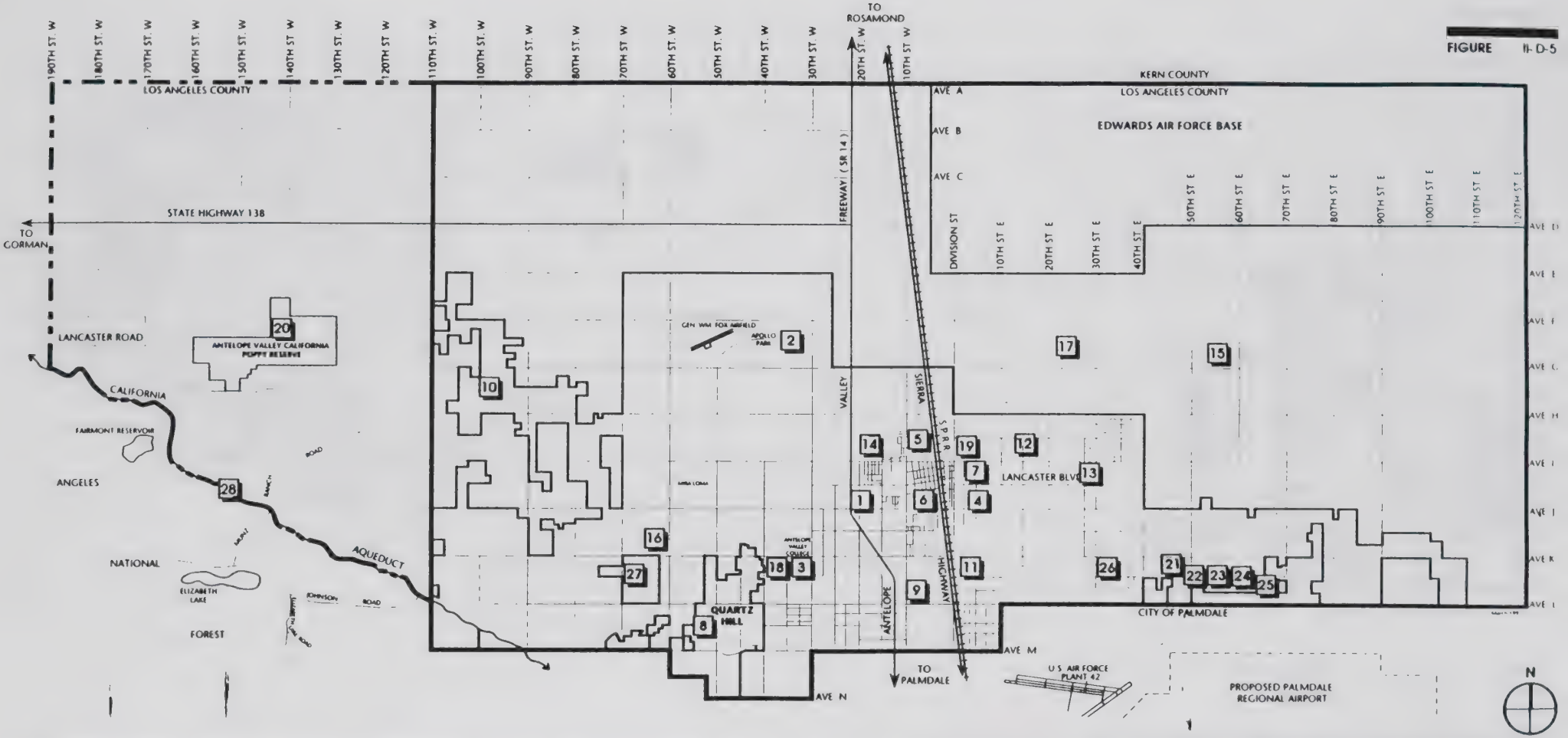
2. ANALYSIS

a. Topography

The major landforms characterizing the study area are the hillsides located southwest of Quartz Hill, and the Fairmont and Antelope Buttes. These landforms are an important component of community identity within the City of Lancaster. The hillsides, mountains, and landforms not only physically define the City and its General Plan study area, but also provide significant visual relief, by adding form and visual character to the City. As the primary viewshed feature, the hillsides and landforms merit protection of their natural and visual character from physical changes associated with urbanization.

In addition to major landforms, local topography associated with individual building sites also affects the type and character of development. For example, the steepness of slope limits the overall capability of various lands to support certain activities. Future land uses must, to the greatest extent feasible, be compatible with the specific topographic features of a given area.

FIGURE II-D-5



OUTDOOR RECREATION AREAS

PLANNING NETWORK

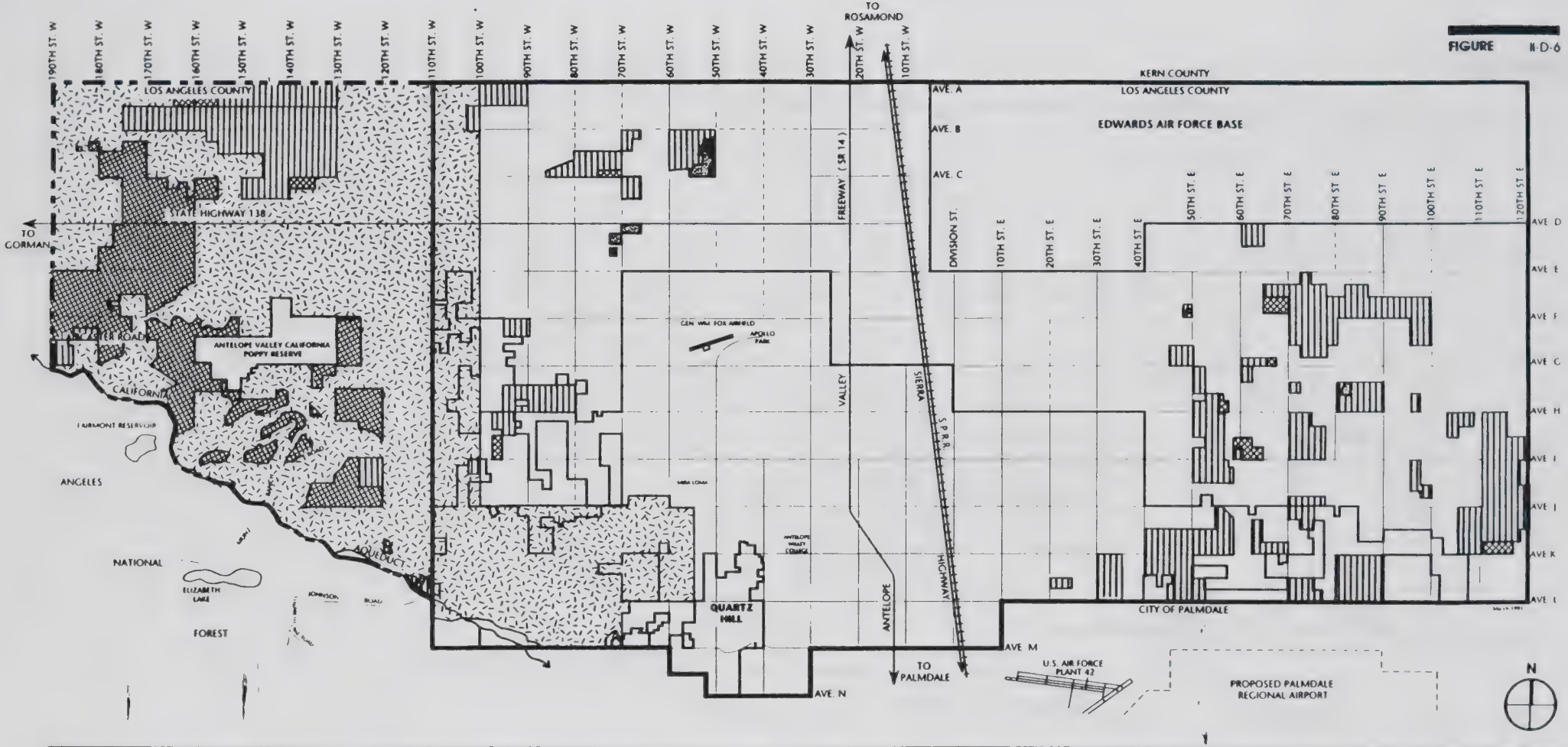
1. Proposed Hull Center
2. Apollo Regional Park
3. Rawley Duntley Park
4. El Dorado Park
5. Mariposa Park
6. Jane Reynolds Park
7. Eastside Park
8. George Lane Park
9. Lancaster City Park
10. Del Sur Park*
11. 5th Street East/Avenue K Retention Basin*
12. 15th Street East/Avenue H Retention Basin*
13. Tierra Bonita Park*
14. Hull Park*
15. Rancho Sierra Golf Club
16. Meadowlark Golf Club
17. Municipal Golf Course*
18. Prime Desert Woodland*
19. Antelope Valley Fairgrounds
20. California Poppy Reserve
21-25. Serrano Ranch Park Sites*
26-27. Proposed Park Sites*
28. California Aqueduct

* Proposed Facilities

SOURCE: Planning Network, 1990

CITY OF LANCASTER
GENERAL PLAN

FIGURE II-D-6



AGRICULTURE AND OPEN LAND INVENTORY

PLANNING NETWORK

PRIME FARMLAND
Land with the best combination of physical and chemical features for the production of agricultural crops.

FARMLAND OF STATEWIDE IMPORTANCE
Land with a good combination of physical and chemical features for the production of agricultural crops.

FARMLAND OF LOCAL IMPORTANCE
Land currently in agricultural production which meets the criteria for Prime and Statewide.

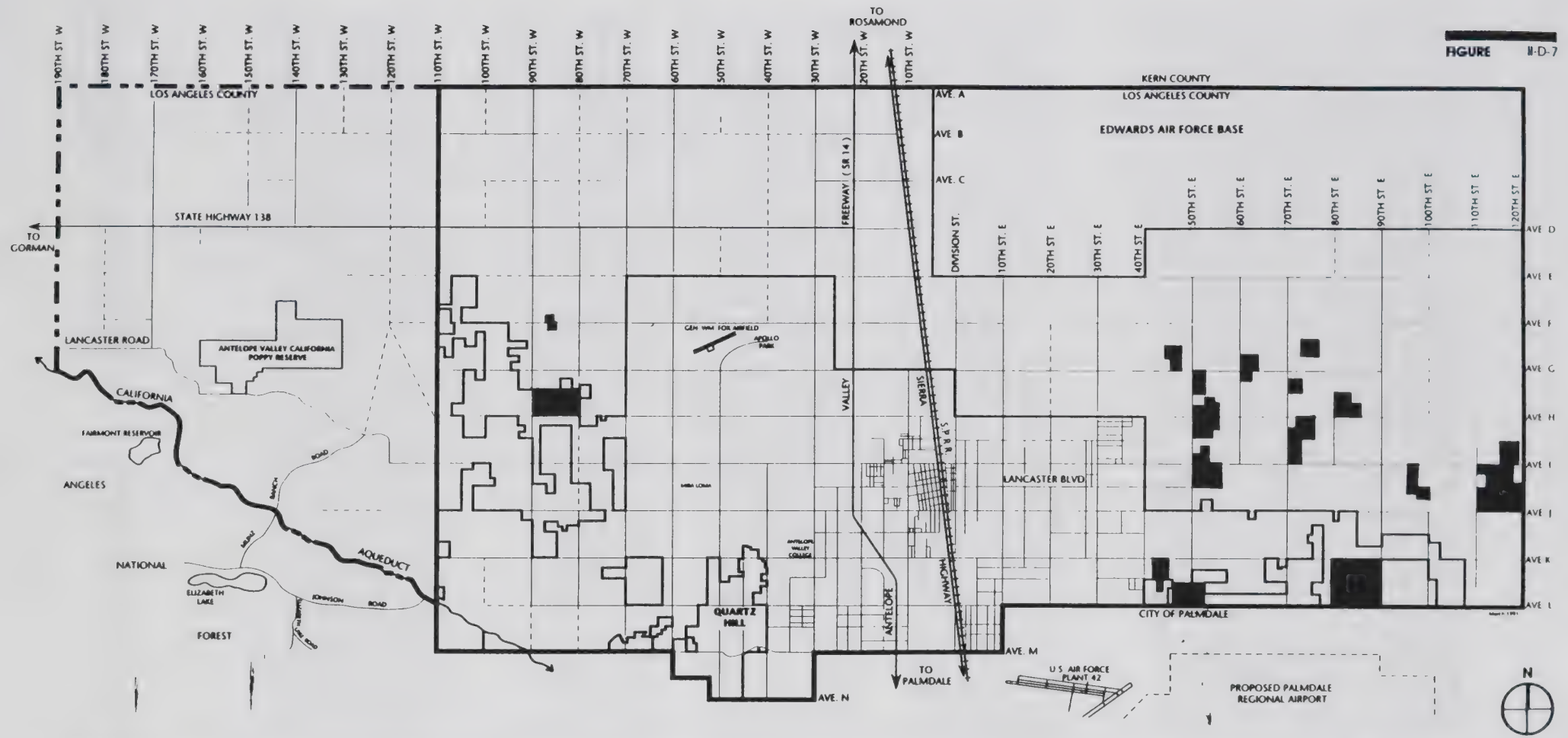
UNIQUE FARMLAND
Land of lesser quality soils used for the production of the State's leading agricultural cash crops.

GRAZING LAND
Land on which the existing vegetation is suited to the grazing of livestock.

SOURCE: Los Angeles County Important Farmland Map, California Department of Conservation, 1986.

CITY OF LANCASTER
GENERAL PLAN

FIGURE III-D-7



PLANNING NETWORK

Agricultural Lands Under Cultivation

TOTAL = 3210 Acres

SOURCE: City of Lancaster, Department of Community Development Air Photo Survey, 1990.

AGRICULTURAL LANDS UNDER CULTIVATION

CITY OF LANCASTER GENERAL PLAN

As an example of how future development can be affected by topography, consider the development of urban uses on flat land as opposed to more rugged terrain. The flat valley floor areas primarily present flooding problems and ground fissures as limitations to various types of development in some areas. The transitional slopes and hills present few to moderate limitations. Future development of these areas would be expected to undergo some moderate level of excavation and grading. However, the steeper slopes of the region would present severe limitations. These areas would require extensive excavation and, possibly, some blasting during construction. Further, the steeper sloped areas are also limited in terms of adequate access and utilities to support urbanization. Consequently, land development can be expected to occur more rapidly in flat areas, due to lower costs. It is anticipated that sloped areas could be used for passive recreational and open space uses. The City would need to review future developments on a project-by-project basis to ensure that hillside developments occur properly.

b. Soils

With the exception of the Pond-Tray-Oban, Vista-Amargosa, and Sunrise Associations, soils within the City of Lancaster and its study area present few significant limitations on urban development. Soils from the Pond-Tray-Oban Association are characterized by high shrink-swell potential. Highly expansive soils can cause substantial damage to building foundations, highways and other surface structures. However, these effects can be minimized or eliminated, provided that this soil condition is recognized and that structures are engineered in accordance with existing building code and City requirements.

Shallow bedrock depths and rock outcroppings generally occur on the steeper slopes of the City and study area and on soils of the Vista-Amargosa Association. This appears to be another significant physical constraint to development. Conventional grading may require light to heavy ripping in order to loosen soils; while blasting may be required to excavate shallow and exposed unweathered granitic rock. Although intense urban development of these soils would be constrained, these areas do have some potential for large lot developments, passive open space, and recreational areas.

As urban development of the City and study area proceeds, natural soils will be exposed during grading operations. During this time, soils of poor to fair stability may become susceptible to water erosion, hillside slope failure, and wind erosion. The extent of erosion which could occur depends on the particular soil, the extent of area being exposed, slope, and the time of year grading operations would occur. Proper erosion control methods will need to be implemented to minimize such impacts of development.

c. Septic Tank Leach Fields

The use of septic tanks for sewage disposal will be generally limited to those rural portions of the City and study area characterized by soils with low to moderate permeability limitations. Therefore, limitations for septic tanks would be minor associations in all soil except those in the Hanford-Ramona-Greenfield and Vista-Amargosa Associations. The Soil Conservation Service has determined that these two soil associations have limited ability to absorb effluent from septic tanks (see Table II-D-3). Figure II-D-8 shows the location of soils most suitable for septic field applications.

There are risks of groundwater pollution when using septic tanks, which are discussed further in the Water Resources Section. Septic tanks will also only be permitted in areas which conform with the City's standards for septic tanks. These standards will permit septic tanks on half-acre lots or larger, according to the Los Angeles County Health Department and City Ordinance.

Table II-D-3
Soil Association Septic Tank Limitation Rating

Soil	Rating
DESERT SOILS	
Hesperia-Rosamond-Cajon	Slight to Moderate
Pond-Tray-Oban	Moderate to Severe
Sunrise	Severe
Adelanto	Slight
ALLUVIAL FANS AND TERRACES	
Hanford-Ramona-Greenfield	Moderate to Severe
UPLAND SOILS	
Vista-Amargosa	Severe

Source: U.S. Soil Conservation Service, 1970.

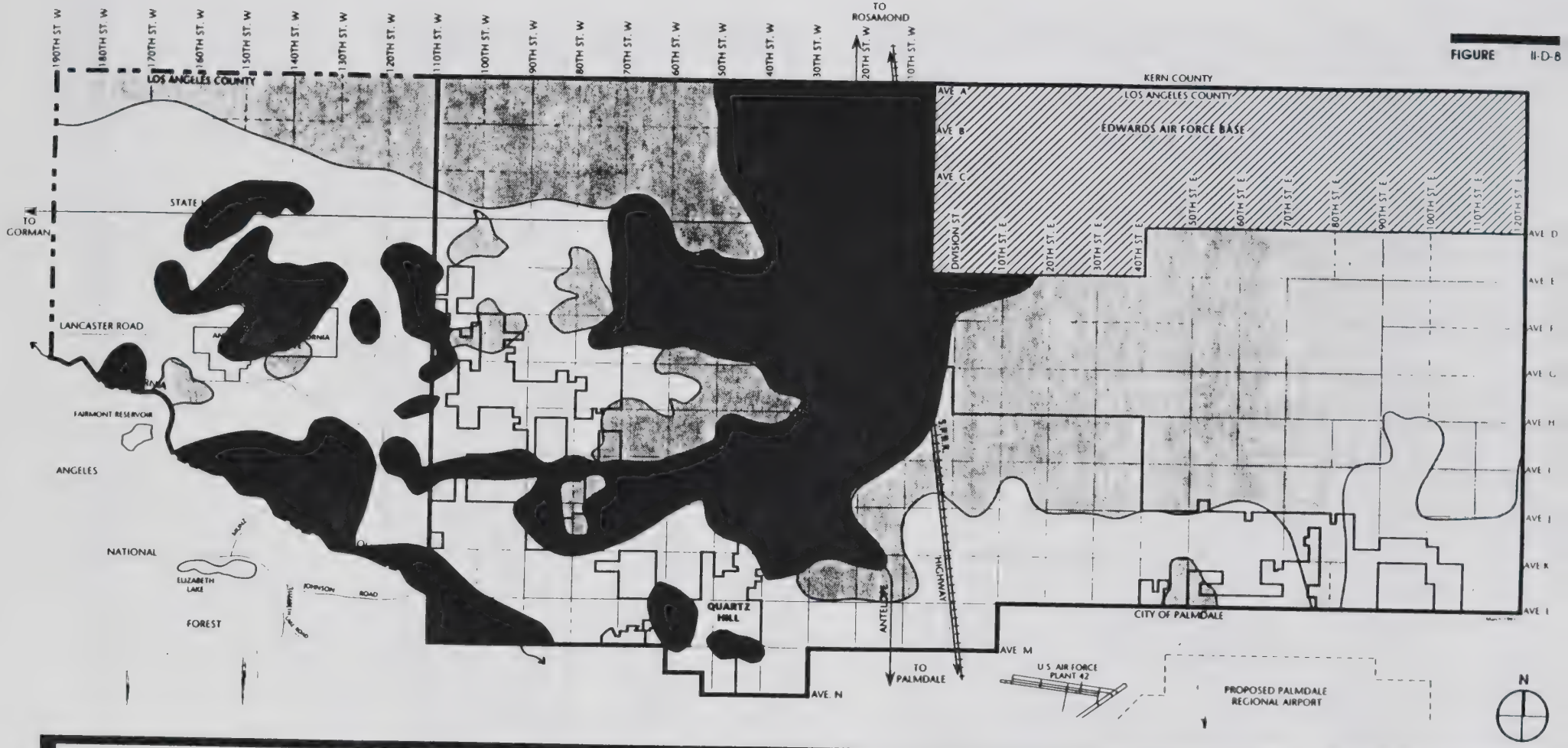
d. Subsidence

Portions of the City and its General Plan study area are characterized by soils which are "sinking." These soils may be sinking as a result of excessive groundwater withdrawal. By removing groundwater, the soil begins to settle where water once supported the ground. Such settling permanently reduces the capacity of the aquifer to store water. During Geologic reconnaissance by the City's engineering consultant in December 1990, over 70 large cracks were charted in a 10-square mile area of undeveloped land in Lancaster. Other fissures are likely present (Geolabs Westlake Village, 1990). Future development will require soil/geology analyses to determine the bearing strength of the soils of development sites and the ability of affected soils to support the future foundations. The City may not want to approve future developments which would be occurring in or within general areas characterized by marginal soil conditions without adequate mitigation measures.

e. Open Space Lands

The preservation of desert woodlands is an issue of local importance. Maintaining Prime Desert Woodlands provides examples of the region's natural setting. However, the best method of preserving these habitats is controversial. The City's current policy attempts to protect these areas by defining how development will blend into Prime Desert Woodland sites. Even so, there is some question as to the compatibility of natural desert habitats with urban development. In some cases, valuable Joshua tree specimens have suffered from over watering, damage from all-terrain vehicles, and vandalism.

FIGURE II-D-8



PLANNING NETWORK

SOIL LIMITATIONS FOR SEPTIC FIELDS

- SLIGHT LIMITATIONS
- MODERATE LIMITATIONS
- SEVERE LIMITATIONS
- EDWARDS AIR FORCE BASE

SOURCE: United States Department of Agriculture, Soil Conservation Map of Soil Limitations for Septic Tank Filter Fields, Antelope Valley Area, 1969.

CITY OF LANCASTER
GENERAL PLAN

To prevent the further degradation of desert habitats, the establishment of an Habitat Conservation Program is recommended (see Biological Resources II-C). The County has established two Significant Ecological Areas comprised of desert woodlands. These areas are located in the northwest portion of the study area and southern portion of the City boundaries. Less significant stands of Joshua Trees are found throughout the City and study area.

The City of Lancaster Prime Desert Woodland Sites Policy Study (Environmental Science Associates, Inc. 1989) recommended that a minimum of 85 acres (per desert woodland community) be considered a target for preservation of desert woodland communities. The study acknowledges that it may be difficult for the City to preserve such large units of desert Woodland habitat on privately owned land, as funding sources for acquisition are limited. The only feasible means of preserving large habitat units (up to 85 acres) through the development process would be to aggregate parcels and cluster development on the selected portions of a site. The report generally recommends preservation of three major desert woodland sites in three ecological alternatives. Other recommended forms of protection to be considered together are: acquisition (in fee, in easements, through dedication, transfer of development rights, etc.), public education and preserve management, and mitigation requirements for development within and adjacent to Prime Desert Woodland Sites, including in lieu payments for loss of the habitat. District revenues could be used to purchase fencing to protect existing designated Prime Desert Woodlands and the desert ecosystem. This measure would reduce impacts of increased human activity on important sensitive environments, although this is not a permanent solution.

f. Agricultural Lands

According to the State of California Department of Conservation, prime and important farmlands are found primarily east and west of the City of Lancaster. Low density residential development has already begun encroaching on prime and important agricultural lands throughout the study area.

Much of the land immediately west of Lancaster is not suitable for agricultural production. This area separates the western agricultural lands from the urbanized center of the study area. The location and poor soil quality of that area creates a natural buffer between agricultural and urban areas.

While agriculture may no longer be a viable economic activity, it nevertheless enhances the rural image of the City. In addition, agricultural land uses may serve as a buffer between the developed and mountainous portions of the study area.Through its policies, the City's General Plan attempts to provide a balance between totally eliminating agriculture and preserving land to produce feasible crops. Much of the study area is not irrigated, and, subsequently, a portion of the agricultural lands still under cultivation are dry farmed. Typically, these crops have low cash values and require large areas to support a viable farm. These lands are also generally perceived by owners as "holding operations."

E. ENERGY RESOURCES

1. EXISTING SETTING

a. Electricity

Southern California Edison currently provides electrical service to the Lancaster area. By utilizing a system of direct production, cogeneration, and electrical purchase, Edison's electrical supply capacity exceeds 18,000 megawatts. Based on the 1989 land use, it is estimated that the study area consumed over 1.8 million kilowatt hours per day (Kwh/day) of electricity (see Table II-E-1). Residential uses consumed 31 percent of this total, with commercial and industrial uses consuming the balance.

Edison maintains several regional electrical transmission lines in the western portion of the study area. There are two 220,000 volt (220 kV) transmission lines and one 500 kV transmission line located in the southwest portion of the study area (see Figure II-E-1). All other lines in the study area are 66 kV or less. One of the two power corridors existing in the study area parallels 120th Street West to south of Avenue F, then proceeds south toward the Los Angeles basin. The second corridor crosses diagonally from the northwest corner of the study area, and then proceeds south toward San Bernardino. Edison operates two regional substations, both located in the western portion of the study area. One is located near 90th Street West and Avenue H and the other is located near Avenue J and 90th Street West.

b. Natural Gas

Natural gas is supplied to the Lancaster area by the Southern California Gas Company, which provided nearly one trillion cubic feet of natural gas to all of its consumers in 1989. Based on 1989 land use figures, it is estimated that the study area consumed over nine million cubic feet of natural gas per day (cf/day) (see Table II-E-1). The Gas Company maintains an extensive supply network within the incorporated and unincorporated sections of Lancaster (see Figure II-E-1).

2. ANALYSIS

Future development in the City of Lancaster and the General Plan Study Area will result in significant increases in energy consumption, which, in turn, will require significant future expansion of local electrical and natural gas distribution systems.

It should be noted that energy consumption for industrial facilities has been excluded because it cannot be accurately projected unless the specific use is known. For instance, a light manufacturing facility would use less electricity and/or natural gas than a facility engaged in the smelting of metals. Since exact industrial uses which will locate within the study area are not known, the projections shown do not reflect total energy consumption within the study area.

The Southern California Association of Governments (SCAG) estimates that the City of Lancaster will grow to a population of 234,228 by the Year 2010, compared to its estimated 1990 population of 88,732.[1] This represents an average annual increase of three percent, or 7,275 new residents each year. Local utility companies frequently review their service capacities to reflect current growth projections.

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[1] Census data shows a 1990 population for Lancaster of 97,291 persons.

Table II-E-1
Study Area Energy Usage[1]

1989

Land Use	Quantity	Electricity	Natural Gas
Residential	35,501 Units	591,456 kwh/day	7,887,139 cu.ft./day[2]
Commercial	12,763,080 square feet	1,286,798 kwh/day	1,233,764 cu.ft./day
TOTAL		1,878,254 kwh/day	9,120,903 cu.ft./day

2010

Land Use	Quantity	Electricity	Natural Gas
Residential	129,643 Units	2,159,888 kwh/day	28,802,353 cu.ft./day[2]
Commercial	130,680,000 square feet	13,175,408 kwh/day	12,632,400 cu.ft./day
TOTAL USAGE		15,335,296 kwh/day	41,434,753 cu.ft./day

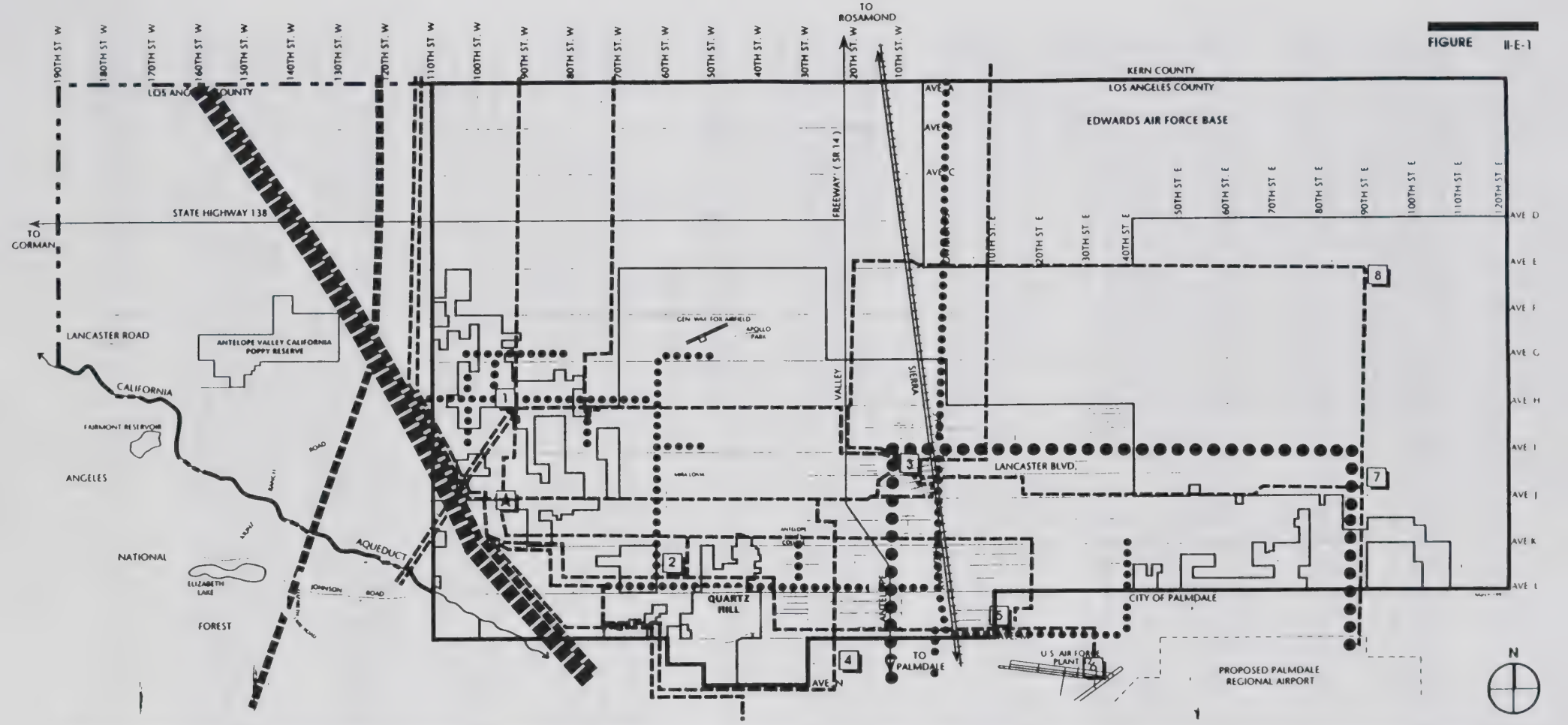
1 Factors for electricity and natural gas use are from the SCAQMD Air Quality Handbook for Preparing Environmental Impact Reports (Revised 1987). Electricity = 6,081 kwh/residential unit/year; 36.8 kwh/sq.ft./year (average of restaurant, retail, and food store factors). Natural Gas = 6,665 cu.ft./single family unit/month; 2.9 cu.ft./sq.ft./month (shopping center/retail stores). Commercial acreage assumes 30 percent building coverage.

2 Natural gas consumption figures are slightly higher than true figures, as the consumption factors for residential land use are based on single family units only.

a. Electricity

Based on the 2010 projected land uses, the study area will eventually consume approximately 15 million Kwh/day of electricity (see Table II-E-1). The local Southern California Edison Planning Department indicated that as long as adequate energy supplies are available to produce electricity, Edison will continue its practice of planning electric facilities and service for future growth for the study area.Southern California Edison has 2-year, 5-year and 10-year plans, based on conditional use permits and information from developers, to predict future electrical usage. These plans are reviewed annually. The local Southern California Edison Planning Department indicated that they do not anticipate a problem in providing energy for the future population of the area. To assist the SCE in its efforts to assure adequate facilities to support future development, the City may want to keep SCE apprised of local development trends and anticipated changes in land use.

FIGURE II-E-1



ENERGY UTILITY LINES

PLANNING NETWORK

ELECTRIC TRANSMISSION LINES
- 500 kv (REGIONAL)
- 220 kv (REGIONAL)
- 66 kv (LOCAL)

NATURAL GAS SUPPLY LINES
- TEN INCH
- EIGHT INCH

ANTELOPE VALLEY REGIONAL SUBSTATION (220kv)

LOCAL SUBSTATIONS (66kv)

1.	Del Sur	5.	Oasis
2.	Quartz Hill	6.	Tortoise
3.	Lancaster	7.	Piute
4.	Shuttle	8.	Redman

SOURCE: Southern California Edison and Southern California Gas Company Records, 1990.

CITY OF LANCASTER
GENERAL PLAN

The Research and Development Department of Southern California Edison is continuously in the process of studying alternative sources of energy. This research is usually conducted with other public services and private partnerships; examples are hydropower and solar energy.

The regional Edison transmission corridors also present significant opportunities and constraints in terms of land use planning. The City will need to consider appropriate land uses within these corridors.

On the positive side, transmission corridors present opportunities for the provision of recreational facilities and open space, and are especially suitable for the development of trails. However, the negative aspects of these transmission corridors must also be recognized. Transmission lines and rights-of-way create artificial linear spaces stretching across portions of the study area. These vacant spaces can be left vacant to become eyesores. However, with public and/or private investment in construction or the installation of landscape and continuing expenditures for maintenance, these spaces can become usable recreational open space.

The City's ability to control the location and design of energy transmission lines is limited, due to the fact that these areas are generally owned and operated by public utility companies. The City's primary avenue of control is as a commenting agency for environmental documents on proposed energy corridors.

b. Natural Gas

Based on the projected 2010 population, the City will consume almost 41 million cf/day of natural gas (see Table II-E-1). As long as adequate supplies are available and the Southern California Gas Company continues its practice of planning natural gas facilities for future growth, there will be adequate natural gas service for the study area.

The location of major natural gas lines will need to be taken into account to protect public safety when planning local land uses.

c. Energy Conservation

Energy conservation has become an increasingly important concern in the Southern California region, as well as on the national level. Increasing demands upon our limited supply of energy sources has led to an increased reliance on foreign energy fuels, expensive additional power-generation plants, and a myriad of support facilities related to the production and distribution of energy.

As a result, energy conservation has become a concern in both keeping costs and reliance on foreign energy supplies to a minimum, while at the same time, conserving the limited amount of nonrenewable energy resources which are available on a world-wide basis.

Opportunities exist in the design of individual neighborhoods and development sites. Energy efficient design measures can be categorized according to the "scale" at which they occur. Thus, energy efficiency measures can be identified at community, neighborhood, site, and building design scales.

On a community scale, the City of Lancaster can help reduce energy consumption in a number of ways. By encouraging increases in local employment opportunities, and by providing housing in proximity to employment, commercial, and recreational opportunities, energy consumed in automobile travel can be reduced.

Increasing development intensity can often decrease the amount of per unit infrastructure (streets, water lines, sewer, storm drains, and other utilities) required to support land uses, which, in turn, can lead to a reduction in the energy required to construct and maintain the city's physical plant. For example, a reduction in street width means less energy for construction and maintenance. Increased development intensity by reducing the space cooling and heating needs on adjacent structures. Similarly, the availability of street trees and shade trees can also affect microclimates and aid in energy conservation.

Energy used to operate a building can be categorized into direct and indirect uses. Space conditioning (heating and cooling) and appliance operation are the major direct uses. Water supply, wastewater treatment, and solid waste disposal consume energy indirectly. Production of commodities by industrial development is a direct use of energy, while the production of food and commodities consumed by the residential sector is an indirect use of energy.

Site design affects energy consumption in the form of space heating and cooling in three ways. First, the effectiveness of passive solar design measures at the building scale is influenced by the orientation of structures. Orientation affects the amount of winter heat gain and the effectiveness of summer shading devises. Second, site design affects solar access to south-facing glazing and collectors. Third, it can influence natural ventilation and shading throughout the year. Site design also affects indirect uses of energy, including water used for irrigation, and the availability of usable outdoor environments.

Shared recreational facilities within a development, such as a clubhouse/swimming pool complex, decreases energy consumption by reducing or eliminating the need for individual homeowners to install such facilities. They also reduce the need to drive to more centralized facilities, thereby minimizing transportation energy use.

Numerous methods are available to reduce energy consumption at the building scale, and are well documented. In general, these methods consist of passive measures, such as insulation against unwanted heat gain or loss, maximization of natural lighting and ventilation, as well as active measures, such as the provision of solar water heating. Many building scale energy conservation measures have been incorporated into Title 24 of the California Administrative Code, and are required of all residential structures.

F. MINERAL RESOURCES

1. EXISTING SETTING

a. Regional Resources.

The western Mojave Desert region has historically been an important source of both metallic and nonmetallic minerals and rocks. Metal ores such as gold, silver, and tungsten were mined for years in the Mojave mining district. Minor deposits of tin, lead-zinc, copper, manganese, and radioactive materials were also exploited, but eventually became uneconomical after World War II, due largely to depletion of the deposits. Currently there are no active mines within the General Plan study area.

A number of exploratory energy wells were drilled in the study area over the past century, but none ever indicated the presence of oil or gas. Apparently, the geologic marine formations that underlay the Mojave Desert and the study area are too metamorphosed to act as a source for oil or gas.

b. Aggregate Resources

To protect and allow for the economical utilization of aggregate resources, the Surface Mining and Recovery Act (SMARA 1975) charges the State Mining and Geology Board to inventory and classify potential aggregate resources throughout the state. The necessary information is developed during a process called classification/designation. This information must be incorporated into general plans and be considered by local jurisdictions when making decisions concerning land use.

The Lancaster General Plan study area is located in the Palmdale Production-Consumption (P-C) region. A production consumption region is the market area of a mineral commodity, in this case, sand and gravel. The State Geologist classifies Mineral Resource Zones (MRZ) within a P-C region based on the following geological factors:

- MRZ-1 indicates an area that contains no resources.
- MRZ-2 indicates the existence of a deposit that meets certain criteria for value and marketability.
- MRZ-3 indicates an area which contains potential but presently unproven resources.
- MRZ-4 are areas where it is not possible at present to assign any of the above categories.

According to the most recent data from the California Division of Mines and Geology, the study area includes both MRZ-1 and MRZ-3 resource areas (see Figure II-F-1). The MRZ-3 classification indicates potentially significant mineral deposits that can be reclassified as significant mineral deposits through either a petition or regular periodic review by the State. This reclassification can occur in the event of a change in the mineral resources, or if a threat to the extraction of mineral deposits develops. Once areas within their jurisdiction have been classified as MRZ-3, cities and counties are responsible for having a report prepared on the economic viability and extent of the resource.

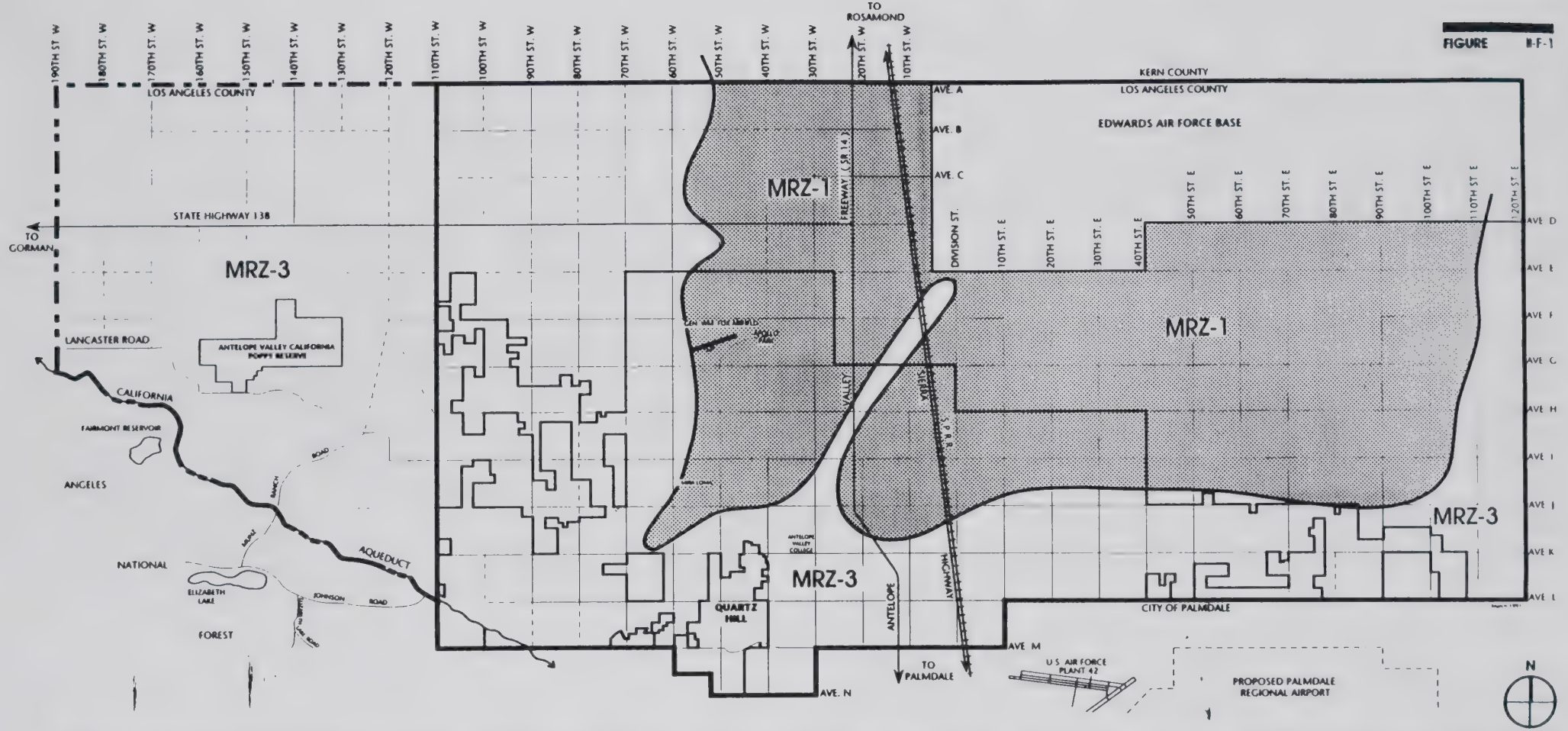
The primary local source of aggregate materials for construction, principally sand and gravel, is outside of the study area and, to some degree, outside of the Antelope Valley region. Mineral resources used for construction such as sand, gravel, and stone have to be imported from the Little Rock Creek fan, located approximately 13 miles southeast of Lancaster, and from the Big Rock Creek fan, about 8 miles further east. The Little Rock Creek deposit is a Holocene alluvial fan approximately 12 square miles in area and extends north from the San Gabriel mountains. The Big Rock Creek deposit is considerably larger but of a similar composition to the Little Rock Creek fan. Both of these deposits consist of about 40 percent gravel to 60 percent fine to coarse sand and silt. The gravel is derived from young granitic rocks (granodiorite, quartz monzonite, and quartz diorite), while the sand is composed of quartz, mica, and feldspar.

2. ANALYSIS

There are potential, but presently unproven, mineral deposits within the southern and western portions of the study area. In order to insure the protection of Mineral Resource Zones-3 (MRZs) that may be annexed to the City, any lands designated MRZ adjacent or annexed into the City must be designated specifically to comply with state SMARA requirements.

The absence of known mineral resources in the area offers some opportunities and constraints for development. The cost of transporting building materials, particularly sand and gravel, to the area may increase buildings costs. While the absence of mining sites offers residents some relief from exposures to loud noise, vibrations, dust, etc., transporting such materials through and within the study area may exacerbate the local air pollution problems, especially in regard to the amount of airborne particulates. However, local aggregate resources are fairly close to the City (less than 15 miles), and are much closer to this area than many suburban areas. Material costs are also less in the high desert region. Many factors must be weighed, such as the creation of dust versus fewer vehicular miles needed, if more local aggregate sources are developed.

FIGURE II-F-1



PLANNING NETWORK

MINERAL RESOURCE ZONE ONE
This zone contains no known resources.

MRZ-3 MINERAL RESOURCE ZONE THREE
This zone contains potential, but presently unproven resources.

SOURCE: Palmdale Consumption (P-C) Region Map, California Division of Mines and Geology (SMARA) 1983, #143

MINERAL RESOURCES

CITY OF LANCASTER
GENERAL PLAN

G. SCENIC RESOURCES

1. EXISTING SETTING

Scenic resources within the City of Lancaster and its General Plan Study Area are those unique visual features that provide attractive views either into or from the study area. Major visual resources are topographic features, and are shown in Figure II-G-1.

The most well known desert plant in the Antelope Valley is the Joshua Tree. This and other endemic plants are primarily associated with the "desert" and "desert woodland" plant communities. The several south-central portions of the study area, both in and outside of the City, contain "desert woodland" communities. This plant assemblage has significant local and regional value, based on data available from the California Department of Fish and Game. The City has proposed an ordinance to help protect this vegetation with the goal of local preservation.

a. Topography

The most prominent local topographic feature in the City itself is Quartz Hill, located in the southwest corner of the City. This landform rises over 200 feet above the nearby unincorporated community of Quartz Hill, immediately south of Lancaster.

Lancaster and surrounding lands are part of the Mojave desert basin, and are relatively flat. Within the central portions of the study area, the mountains to the south provide significant view-sheds, especially for the southwest corner of the study area. However, these resources are not in the study area.

Local views in the western half of the study area are provided by several isolated uplands, including Fairmont Butte and the Antelope Buttes, located near 130th Street West and Avenue G, and Summit Buttes, located near 100th Street West and Avenue C. Minor views are provided to the eastern portion of the study area by Saddleback, Alpine, Rocky, and Piute Buttes, located near 175th Street East and Avenue J.

b. Desert Environment

Scenic views of the desert are available throughout much of the study area, particularly in the undeveloped eastern portions. Long-range views of the rugged mountains to the south, southwest, north, and west are available from the City and surrounding area including the Antelope Valley freeway. The unique desert "scene" of Lancaster is directly associated with Joshua Trees and Juniper shrubs, which are most plentiful in the eastern and southern portions of the study area. Most of the north central and eastern portions of the study area consist almost exclusively of low desert scrub plants, which do not provide particularly aesthetic views. Much of the western portions of the study area are large areas of flat, vacant, or formerly cultivated agricultural lands.

The desert flora of the Antelope Valley region are a significant visual resource during various times of the year. In the spring, the valley exhibits brilliant displays of orange, yellow, and purple wildflowers. The California Poppy Reserve, located in the western portion of the study area near 130th Street West and Avenue G, is a State Park created to preserve these sensitive wildflowers. The Reserve contains hiking trails and an interpretive center where tourists can observe and learn more about some of the more colorful residents of the valley.

c. Points of Interest

The study area contains several cultural sites or points of interest that represent visual landmarks. As discussed in the Historical and Cultural Resources section, several archaeological sites are visible along Amargosa and Anaverde Creeks, while others are located along the ridges immediately south and west of the City. The most prominent historical landmark in the City is the Western Hotel, built in the 1880's, which is registered with the California Historical Landmarks Advisory Committee and by the State Director of Parks and Recreation. The building has been renovated and now serves as a museum of local history.

d. Scenic Routes

There are no officially designated scenic routes or highways within the study area at present; however, Los Angeles County's Antelope Valley Community Plan identifies the following local roadways which could potentially serve as scenic routes (see Figure II-G-1):

- *Antelope Valley Freeway* Within the study area (Avenues A to M), this route has long-range views of the San Gabriel Mountains to the southwest, south, and southeast, and far-off views of the San Bernardino Mountains to the southeast. Where it runs at grade, views from the freeway provide travelers with their primary introduction to the character of the Lancaster area. To the north, this route provides close in views of open desert lands.

- *Avenue K* This route has views of the San Gabriel Mountains to the south and the Portal Ridge foothills to the southwest, from the Antelope Valley freeway west to 110th Street West.

- *Avenue M* Between the Antelope Valley Freeway and 60th Street West, this route passes by Quartz Hill and has views of the San Gabriel Mountains to the south.

- *60th Street West* Between Avenues K and M, this route has views of the Portal Ridge to the west and the San Gabriel foothills to the south.

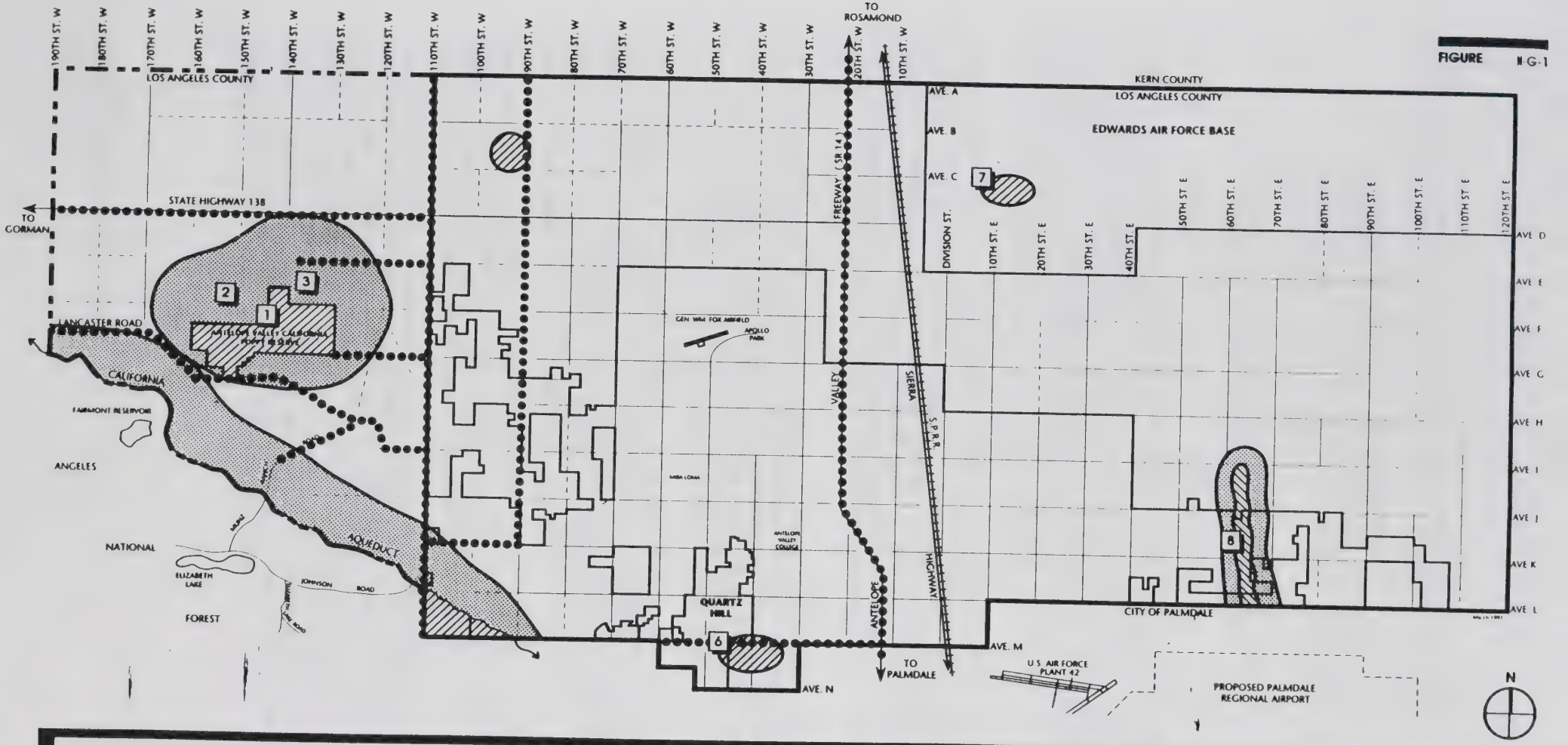
- *90th Street West* This route has long-range views of the San Gabriel Mountains to the south and southwest. In the northern portion of the study area, this route provides close-in views of open desert.

- *110th Street West* Views are similar to 90th Street West, but also include views of the Poppy Preserve to the west (north of Avenue I).

- *Lancaster Road* From 110th Street West to 190th Street West, this winding country road has views of the foothills to the south and the Poppy Preserve to the north.

- *Munz Ranch Road* This scenic road climbs into Portal Ridge from the north, providing excellent mountain and desert views.

FIGURE II-G-1



PLANNING NETWORK

SCENIC RESOURCES

SCENIC AREAS

1. California Poppy Reserve
2. Fairmont Buttes
3. Antelope Buttes
4. Foothills Area
5. Little Buttes
6. Quartz Hill
7. Piute Ponds
8. Little Rock Wash

VISUAL BUFFER AREAS

POTENTIAL SCENIC ROUTES

SOURCE: Antelope Valley Areawide General Plan, County of Los Angeles Department of Regional Planning, 1986.

CITY OF LANCASTER
GENERAL PLAN

In addition to the roadways designated as scenic in the County Community Plan, there are two local roadways that also deserve consideration as scenic corridors:

- *Highway 138* West of 110th Street West, this highway has long distance views of mountains to the west and south, as well as immediate views of the Poppy Preserve between 130th and 150th Streets West. Excellent views of older agricultural areas and open desert can also be seen.

- *Avenues E and G* These unimproved roads travel west from 110th Street West directly into the Poppy Preserve.

2. ANALYSIS

The desert scene in Lancaster is unique because of two features: the flat, open expanse of low brush punctuated by Joshua and Juniper Trees, and the distance to the local mountains that gives them a reduced scale relative to the closer basin. This arrangement makes it difficult to emphasize the visual desert elements, since the overall scene is open desert with no nearby vertical (visual) relief. The primary goal of the City, in terms of scenic elements, will be to determine if it wishes to emphasize this existing desert scene, to create its own unique City scene through urban design, or to emphasize a combination of both.

There are several ways to create or maintain attractive views as the City develops. The predominant visual feature of this relatively flat basin is the open desert, accentuated by the surrounding hillsides. How well new development accentuates, enhances, or changes this character will be the most significant visual issue for the City. New development must not only be sensitive to the long-range views it provides for new residents, but also to new views created for surrounding areas and roadways, as well as to preserving views of existing scenic features.

One alternative will be to enhance views of the study area through careful incorporation of low-rise and/or desert-related "themes," either in architecture or landscaping, or through special site design that emphasizes a desert atmosphere or ambiance. Another alternative would be to create a unique visual style completely separate from that of the desert. This could be accomplished by the use of multi-story structures, where appropriate, to provide visual relief.

The maintenance of long-term views and a desert atmosphere can be accomplished either within the City or surrounding it, depending on the scenic goals of the City. In most areas, mainly outside of the existing City limits, urban development has not yet significantly reduced open desert views or scarred the surrounding hillsides. Thus, there is an opportunity for public investment to insure the future maintenance of existing and potential visual resources.

There are also existing detrimental views within the City, such as strip commercial areas, dilapidated buildings, weedy vacant lots, etc. General Plan policies address improving these views. Potential solutions include redevelopment, a cooperative facade program, signage control, code enforcement, etc.

Views of local topographic features, such as Quartz Hill and the Poppy Preserve area, as well as long distance views of the San Gabriel and Tehachapi Mountains and open desert areas, will need to be carefully considered in building or roadway design if preservation of such views is desired. The City may want to encourage development and roadways in the western third of the study area to be sensitive to potential views of the California Poppy Preserve areas and along the California Aqueduct, and development in the central part of the City to be sensitive to existing and potentially significant historical resources, as well as to the potential for creating and maintaining high quality urban visual resources.

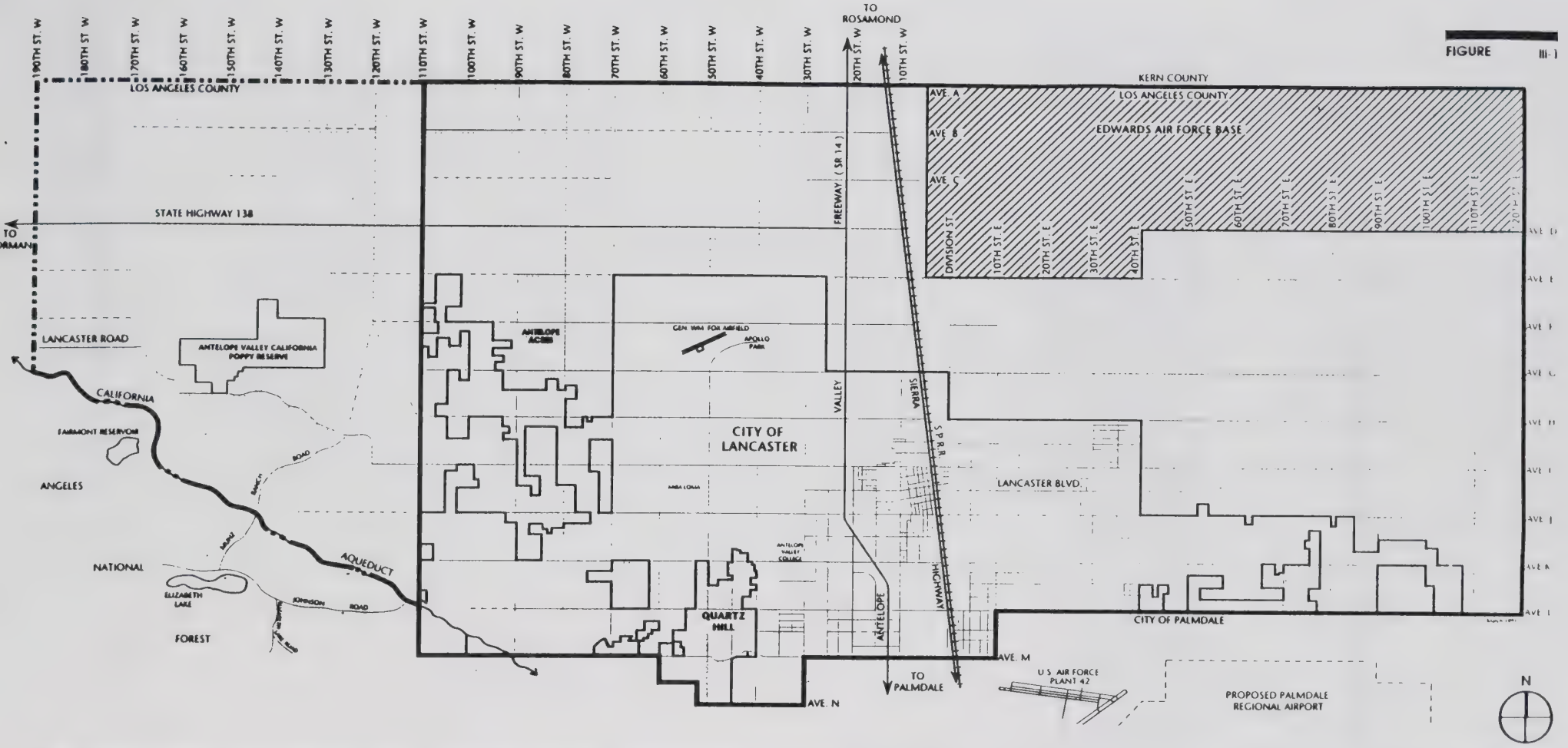
III. STATE OF THE CITY REPORT
PUBLIC HEALTH AND SAFETY

III. PUBLIC HEALTH AND SAFETY

INTRODUCTION

The Public Health and Safety Chapter evaluates natural and manmade conditions which may pose levels of health and safety hazards to people and property within the Lancaster General Plan study area (see Figure III-1) along with current programs to mitigate those hazards to acceptable levels. Inherent in this plan is a determination of "acceptable risk," which is based on a determination of how safe is safe enough, balancing the cost of hazard mitigation with its benefits. This plan also addresses existing hazards faced by Lancaster residents and businesses, and provides a program to mitigate those hazards.

FIGURE III-1



AREA CONTEXT

PLANNING NETWORK

- CITY BOUNDARY
- INCORPORATED AREA
  As of October, 1990
- SPHERE OF INFLUENCE BOUNDARY
- EXPANDED STUDY AREA
- UNINCORPORATED
- EDWARDS AIR FORCE BASE

SOURCE: City of Lancaster Planning Department

CITY OF LANCASTER
GENERAL PLAN

III. PUBLIC HEALTH AND SAFETY

INTRODUCTION

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A. GEOLOGY AND SEISMICITY

1. EXISTING SETTING

a. Local Geology

The City of Lancaster lies within a seismically active area referred to as the Mojave Desert Geomorphic Province of California, and is located at the western edge of a moving plate in the earth's crust. Defining the boundary of this area is the San Andreas fault, where the Pacific Plate and the North American Plate meet (Dibblee 1967).

The Pacific Plate is wedging itself beneath the adjacent North American Plate at a steep angle in a generally northwest to southeast direction. As these two land masses move slowly past each other, the enormous pressure causes buckling, breaking, and fracturing in the earth's crust. Where these pressures occur, earthquake faults are typically created, namely, the San Andreas fault. Movement along this fault has caused extensive faulting, folding and uplifting in the local rock formations. The San Andreas Fault is located approximately nine (9) miles south of the City of Lancaster.

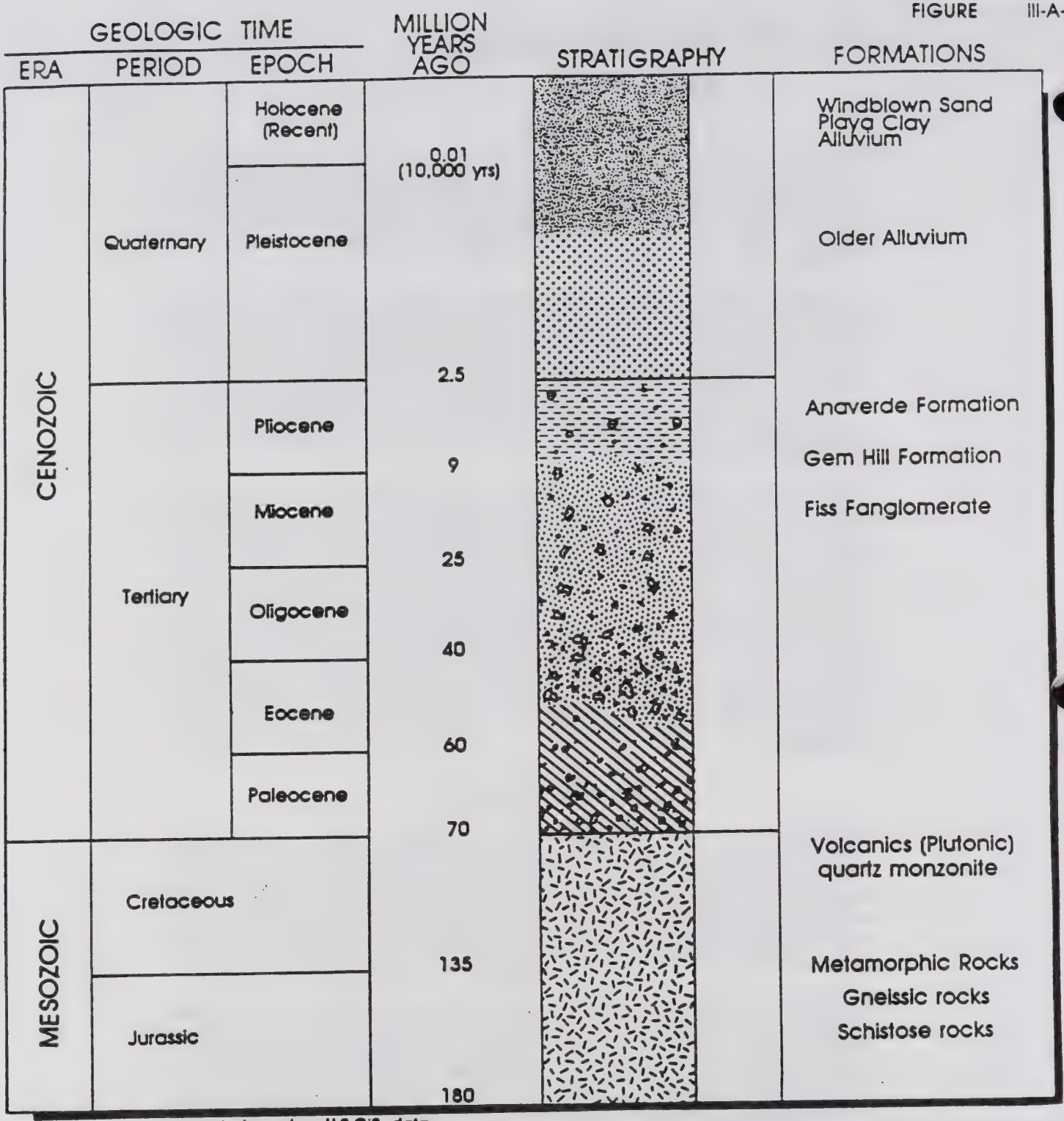
The geology of the study area consists of three main rock groups: crystalline rocks of Pretertiary age; volcanic and sedimentary rocks of Tertiary age; and alluvial sedimentary deposits of Tertiary and Quaternary age. The first two groups consist of older, hard, consolidated materials from the surrounding mountains and rocky buttes that rise from the valley floor. Some of these rock types include schists, quartz monzonite, and local volcanic formations. The third group comprises younger, unconsolidated alluvial (stream-deposited) materials formed in the wash areas of the lower foothills and stream beds that comprise much of the valley floor, in some locations to depths in excess of 2,000 feet (California Geology, 1984). Consolidated rocks equivalent to Tertiary and older materials underlie this alluvium (See Figures III-A-1 and III-A-2). These formations have been subjected to substantial folding and uplifting as a result of local fault movement.

b. Earthquake Measurement

Scientists use two basic scales to measure earthquakes. The first is the Richter Scale, which measures the magnitude (M) of energy released by an earthquake. The Richter Scale is a logarithmic scale whereby an increase of 1.0 on the scale represents an increase of about 32 times the amount of energy released. Thus, an M 6.0 earthquake releases 32 times as much energy as an M 5.0 event. This is the most common scale used to compare the "size" of earthquakes, as it is an objective measure based on the energy released by a particular earthquake.

The second scale used to measure earthquakes is the Modified Mercalli scale (Table III-A-1), which subjectively measures the observed and experienced effects of an earthquake at a particular location. This scale ranges from a low of I (not felt except by a few persons under especially favorable circumstances), to a high of XII (total damage with actual waves seen on the ground surface, lines of sight distorted, and objects thrown upward into the air). Thus, an earthquake will have one Richter magnitude, but will have many different Mercalli intensities based on the effects and level of damage in different areas. Table III-A-2 shows a comparison of Richter magnitudes to Modified Mercalli intensities.

FIGURE III-A-1



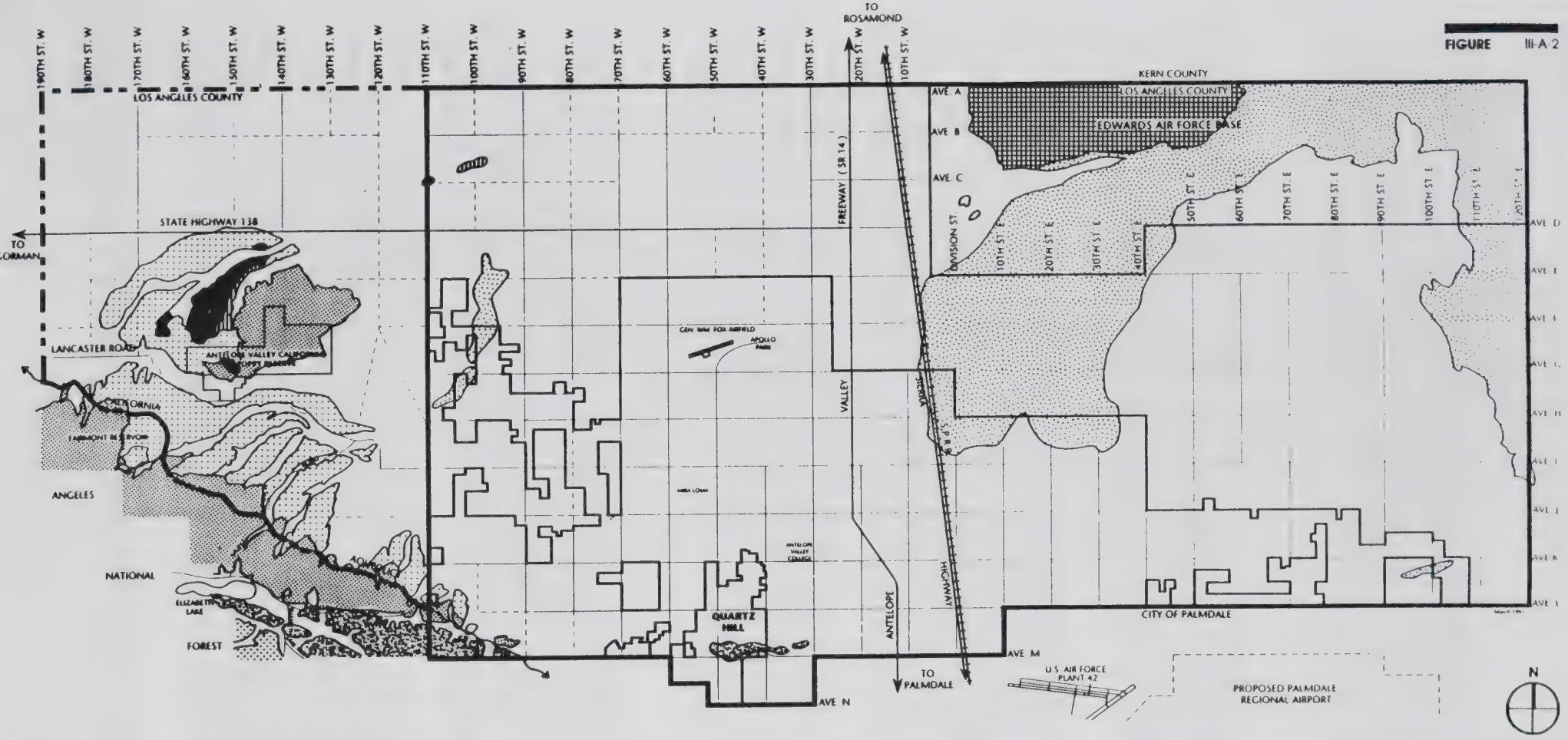
Generalized Palmdale strata based on U.S.G.S. data.

GEOLOGIC STRATA

PLANNING NETWORK

CITY OF LANCASTER
GENERAL PLAN

FIGURE III-A-2



LOCAL GEOLOGY

PLANNING NETWORK

CITY OF LANCASTER
GENERAL PLAN

SEDIMENTARY DEPOSITS

- Alluvium (Qa)
- Older Alluvium (Qoa)
- Windblown Sand (Qs)
- Playa Clay (Qc)
- Gem Hill Formation (Tgh)
- Fiss (Volcanic) Fanglomera (Tf)
- Quartz Monzonite (qm)
- Anaverde Formation (Tav)

META-SEDIMENTARY ROCKS

- Gneissic Rocks (gn)

SOURCE: Areal Geology of the Western Mojave Desert California, Geologic Survey Professional Paper 522, 1967.

Seismic intensity is a function of several factors, but the most important are the distance from the epicenter of the event and the nature of the geologic materials through which the vibrations pass. Generally, the shock waves remain unchanged in bedrock, are amplified to a degree in thick alluvium, and are greatly amplified in thin alluvium. The City of Lancaster is located in an area of moderate to high groundshaking. This results from its proximity to the San Andreas Fault and the soft alluvial soils underlying this portion of the Mojave Desert.

c. Local Faults

The geologic and seismic activity of the Lancaster study area results from its proximity to the "active" San Andreas Fault, south of the California Aqueduct in the vicinity of the Portal Ridge. The term "active" refers to faults that have moved during Holocene time (about the last 11,000 years), while "potentially active" refers to faults that have not moved during Holocene time, but have been active during Quaternary time (11,000 to 3,000,000 years). "Inactive" faults are those which have not demonstrated movement within Quaternary time.

The San Andreas Fault is considered the most significant earthquake threat in California, and has been the source of numerous significant earthquakes in the past. In 1857, an 8+ magnitude earthquake occurred at Fort Tejon near Los Angeles, and an 8+ magnitude earthquake almost destroyed San Francisco in 1906. Both of these events were caused by movement along the San Andreas Fault. Events (M8+) on this fault are estimated to have a recurrence interval of 50-300 years with an average of 160 years between occurrences. In addition, the Garlock Fault (also considered active) branches off the San Andreas Fault north of the study area, and defines the northern boundary of the Antelope Valley.

Due to the complex nature of the San Andreas Fault, the Southern California region contains many parallel faults of various sizes and lengths. The major subsidiary faults surrounding the Antelope Valley are the Punchbowl Fault, the Nadeau Fault, the Cemetery Fault, and the Littlerock Fault. All four faults are active branches of the San Andreas Fault. Movement on the San Andreas Fault may activate one or all of the subsidiary faults. Regional faults are listed in Table III-A-3, while their locations are shown in Figure III-A-3.

d. Primary Seismic Hazards

The primary seismic hazards associated with earthquakes are ground rupture and groundshaking. Ground rupture, such as seismic fissures, refers to displacement of the ground along a fault, which can occur during strong earthquakes. The extent of rupture depends on the specific soil conditions and the severity of a particular seismic event. Such displacement may be vertical, horizontal, or both, and can be up to 20 feet or more in a major earthquake. Utilities, roads, and other linear features are particularly vulnerable to damage as a result of ground rupture where they cross faults.

The most widespread effect, and by far the greatest cause of damage in an earthquake, is groundshaking. The intensity of this shaking depends on several factors, including the magnitude of the earthquake, distance from the earthquake epicenter (point of the earth directly above the focus of the earthquake), and underlying soil conditions. In general, the larger the magnitude of an earthquake and the closer a site is to the epicenter of the event, the greater will be the effects. However, soil conditions can also amplify earthquake shock waves. Generally, the shock waves remain unchanged in bedrock, are amplified to a degree in thick alluvium, and are greatly amplified in thin alluvium. The thicker alluvial materials within the study area are located in the central and northern basin areas.

Table III-A-1
The Mercalli Intensity Scale
(As modified by Charles F. Richter in 1956 and rearranged)

If most of these effects are observed	Then the Intensity is
Earthquake shaking not felt, but people may observe marginal effects of large distance earthquakes without identifying these effects as earthquake-caused. Among them trees, structures, liquids, bodies of water sway slowly, or doors swing slowly.	I
Effect on people: Shaking felt by those at rest, especially if they are indoors, and by those on upper floors.	II
Effect on people: Felt by most people indoors. Some can estimate duration of shaking, but may not recognize shaking of building as caused by an earthquake. Shaking is like that caused by the passing of light trucks.	III
Other effects: Hanging objects swing. Structural effects: Windows or doors rattle. Wooden rails and frames creak.	IV
Effect on people: Felt by everyone indoors. Many estimate duration of shaking but they still may not recognize it as caused by an earthquake. The shaking is like that caused by the passing of heavy trucks, though instead, people may feel the sensation of a jolt, as if a heavy ball had struck the walls. Other effects: Hanging objects swing, standing auto rock. Crockery clashes, dishes rattle, or glasses clink. Structural effects: Doors close, open or swing, windows rattle.	V
Effect on people: Felt by everyone indoors and by most people outdoors. Many now estimate not only the duration of shaking but also its direction and have no doubt as to its cause. Sleepers wakened. Other effects: Hanging objects swing. Shutters or pictures move. Pendulum clocks stop, start, or change rate. Standing autos rock. Crockery clashes, dishes rattle, or glasses clink. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Structural effects: Weak plaster and Masonry D crack. Windows break, doors close, open, or swing.	VI
Effect on people: Felt by everyone. Many are frightened and run outdoors. People walk unsteadily. Other effects: Small church or school bells ring. Pictures thrown off walls, knickknacks and hooks fall off shelves. Dishes or glasses broken. Furniture moved or overturned. Trees, bushes shaken visibly, or heard to rattle. Structural effects: Masonry D damaged, some cracks in Masonry C. Weak chimneys break at roof line. Plaster, louse bricks, stones, tiles, cornices, unbraced parapets and architectural ornament fall. Concrete irrigation ditches damaged.	VII

Table III-A-1 (Continued)
The Mercalli Intensity Scale
(As modified by Charles F. Richter in 1956 and rearranged)

If most of these effects are observed	Then the Intensity Is
Effect on people: difficult to stand. Shaking noticed by auto drivers. Other effects: Waves on ponds. Water turbid with mud. Small slides and caving in occurs along sand or gravel banks. Large bells ring. Furniture broken. Hanging objects quiver. Structural effects: Masonry D heavily damaged; Masonry C damaged, partially collapses in some cases; some damage to Masonry B; none to Masonry A; Stucco and some masonry walls fall. Chimneys factory stacks, monuments, towers, elevated tanks twist or fall. Frame house moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off.	VIII
Effect on people: General fright. People thrown to ground. Other effects: Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes. Steering of autos affected. Branches broken from trees. Structural effects: Masonry D destroyed. Masonry C heavily damaged, sometimes with complete collapse; Masonry B is seriously damaged. General damage to foundations. Frame structures, if not bolted down shifted off foundations. Frames cracked, reservoirs seriously damaged. Underground pipes broken.	IX
Effect on people: General Panic. Other effects: Conspicuous cracks in ground. In areas of soft ground, sand is ejected through holes and piles up into a small crater, and, in muddy areas, water fountains are formed. Structural effects: Most masonry and frame structures destroyed along with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, and embankments. Railroads bent slightly.	X
Effect on people: General Panic. Other effects: Large landslides, water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Structural effects: General destruction of buildings. Underground pipelines completely out of service. Railroads bent greatly.	XI
Effect on people: General Panic. Other effects: Same as for intensity X. Structural effects: Damage nearly total, the ultimate catastrophe.	XII

Masonry A: Good workmanship and mortar, reinforced designed to resist lateral courses.

Masonry B: Good workmanship and mortar, reinforced.

Masonry C: Good workmanship and mortar, unreinforced.

Masonry D: Good workmanship and mortar, and weak materials like adobe.

Source: "California Geology," September, 1984.

Table III-A-2
Comparison Of Richter Magnitude
And Modified Mercalli Intensity

Richter Magnitude	Expected Modified Mercalli Maximum Intensity (at epicenter)	
2	I-II	Usually detected only by instruments
3	III	Felt indoors
4	IV-V	Felt by most people; slight damage
5	VI-VII	Felt by all; many frightened and run outdoors; damage minor to moderate
6	VII-VIII	Everybody runs outdoors; damage moderate to major
7	IX-X	Major damage
8+	X-XII	Total and major damages
		After Charles F. Richter, 1958, Elementary Seismology

Source: "California Geology," September, 1984.

In the Lancaster area, the primary seismic threat from earthquakes is groundshaking, which can also induce the secondary (indirect) threat of fire by damaging or destroying natural gas or electrical utility lines.

The City is included in two of the three seismic shaking zones as determined by the County of Los Angeles. These zones are determined by three factors: distance from an active fault (in this case, San Andreas); the maximum earthquake that can be expected on that fault; and the underlying soil conditions. Zone I represents the area that would be exposed to the highest seismic shaking intensities, Zone II would be exposed to relatively lower intensities, and Zone III would be exposed to the lowest seismic shaking intensities. Zone III is not located within the present limits of the City, but does pass through the northeast portion of the City's sphere of influence (Los Angeles County General Plan, 1980). The location of these zones in relation to the Lancaster study area are shown in Figure III-A-4.

Zone I could theoretically experience an earthquake producing ground accelerations in bedrock exceeding .50 g ("g" represents the force of gravity), and Zone II between .40 g and .50 g. Corresponding Modified Mercalli intensities for the zones would be roughly equivalent to the following ranges: IX to X for Zone I, and VIII to IX for Zone II. It is important to note that these are maximum values anticipated for the maximum credible earthquake. Their probability of occurrence must be evaluated, along with the site conditions and intended land usage, before values can be used for design or construction purposes. Table III-A-4 summarizes ground acceleration and modified Mercalli intensities for these zones.

Table III-A-3
Regional Faults

Regional Fault	Date of Last Major Activity	Maximum Credible Earthquake Richter Magnitude[1]	Approx. Distance (miles) and Direction from Center of Study Area
ACTIVE FAULTS			
Big Pine	1852	7.5	29 NW
Cemetery	NA	NA	10 S
Cucamonga	1990	5.5	40 SE
Elsinore	1910	7.5	61 SE
Littlerock	NA	NA	15 SE
Garlock Zone	IC[2]	7.75	20 NW
Nadean	NA	NA	10 S
Newport-Inglewood	1933	7.7	56 S
Owens Valley	NA	7.4	50 NE
Poweline Fault	NA	NA	9 S
Raymond[3]	NA	6.6	35 S
Punchbowl	NA	NA	15 SE
San Andreas Zone	1857	8.0 +	5 SW
San Gabriel-San Fernando	1971	6.5	18 SW
San Jacinto Zone	1968	7.5	17 SE
White Wolf	1952	7.75	50 NW
Whittier	1987	5.9	48 SE
POTENTIALLY ACTIVE FAULTS[4]			
Calico-Newberry		7.25	75 E
Camp Rock-Emerson		7.0	67 E
Harper		7.0	49 NE
Helendale		7.5	39 E
Johnson Valley		7.0	81 SE
Kern Front		6.25	46 NW
Lenwood		7.25	59 E
Lockhard		7.5	27 NE
Malibu[3]		7.5	43 SW
Old Woman Springs		7.0	71 E
Santa Ynez		7.5	26 W

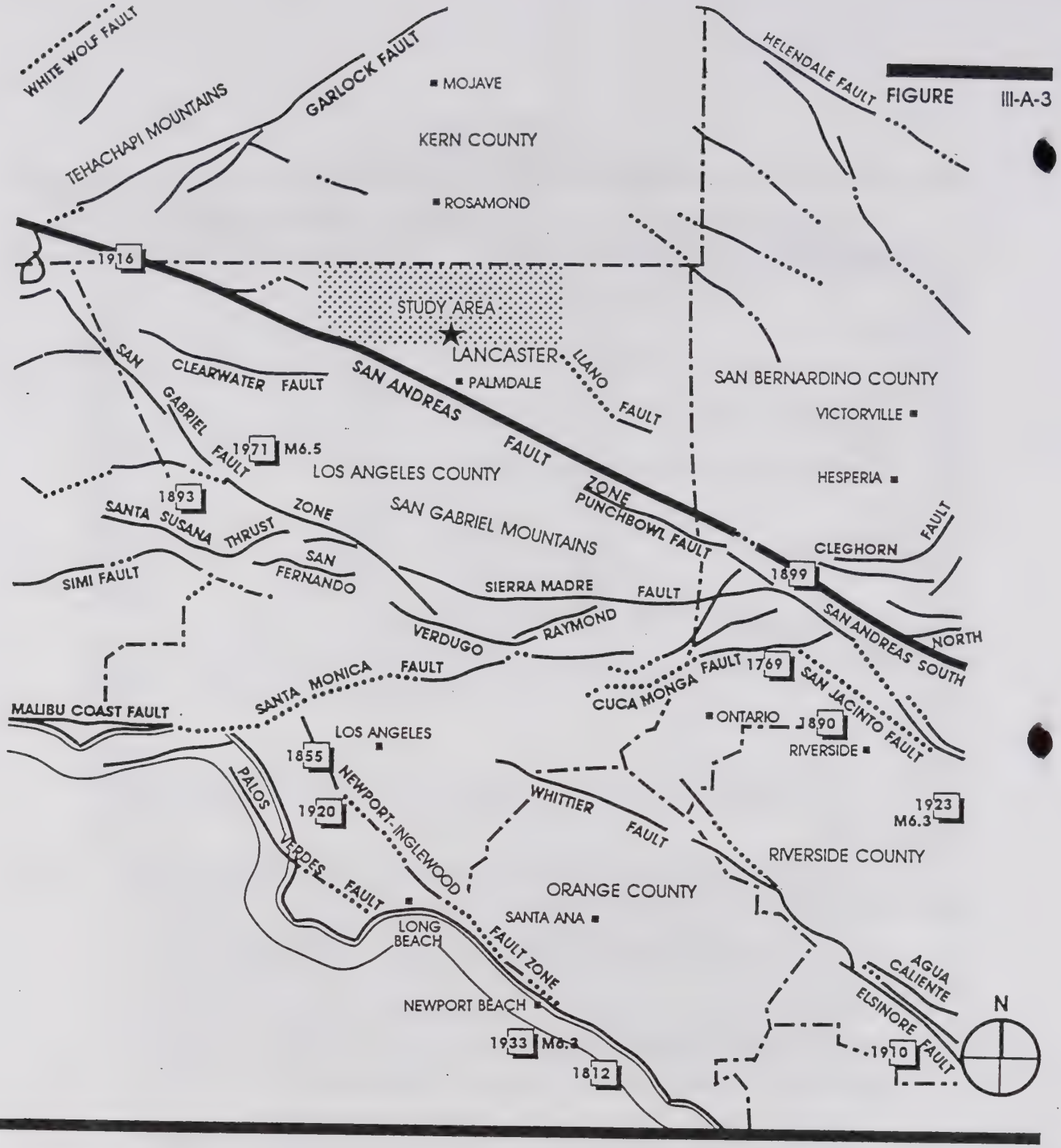
Source: Final EIR for California State Prison, Los Angeles County, 1990

1 From Greensfelder, California Department of Mines & Geology, Mapsheet 23 (1974).

2 IC = Intermittent Creep.

3 Mark (1977) Length - Magnitude Relationship.

4 Last movement during Pleistocene Time (11,000 to 2 million years ago).



PLANNING NETWORK

REGIONAL SEISMICITY

ACTIVE FAULT

POTENTIALLY ACTIVE FAULT

INACTIVE OR ASSUMED FAULT

1907 EARTHQUAKE LOCATIONS

CITY OF LANCASTER
GENERAL PLAN

SOURCE: U.S.G.S. Professional Paper 1343

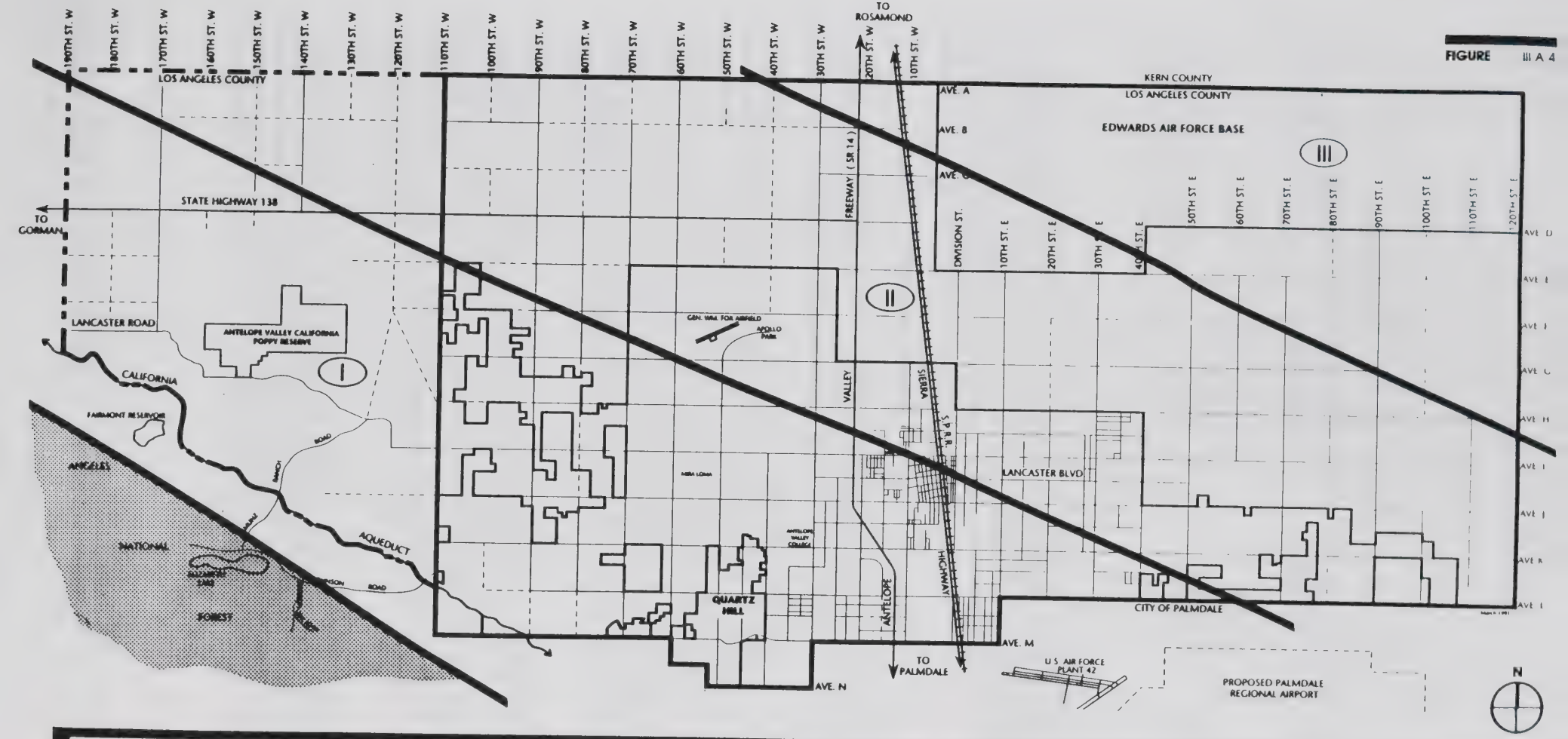


FIGURE III A 4

SEISMIC INTENSITY DISTRICT

PLANNING NETWORK

GROUNDSHAKING INTENSITY

Based on the "Modified Mercalli Scale".

- I — Severe
- II — Moderate
- III — Least

SAN ANDREAS FAULT ZONE

CITY OF LANCASTER
GENERAL PLAN

Table III-A-4
Seismic Shaking Zones

Seismic Shaking Zone	Bedrock Acceleration	Modified Mercalli
I	0.50g	IX to X
II	0.50g-0.40g	VIII to IX
III	<0.40g	I to VII

Source: California Geology, 1984.

If a major earthquake were to occur, extensive damage could result, including the destruction of most unreinforced masonry and frame structures along with their foundations, as well as the destruction of some well-built wooden structures and bridges. Conspicuous ground cracking, bent rails, considerable landsliding from steep slopes, the shifting of mud and sand, and water splash could also be expected as the result of a major earthquake.

e. Secondary Seismic Hazards

In addition to primary hazards, groundshaking can induce several kinds of secondary seismic hazards, including liquefaction, differential settlement, landslides, or seiching (Los Angeles County General Plan, 1980).

Liquefaction The greatest danger from liquefaction occurs in areas where the groundwater table is within thirty (30) feet of ground level, and the soil is poorly consolidated or relatively uncompacted. This condition is characterized by the sudden loss of shearing resistance due to ground shaking combined with an increase in pore water pressure. Subsequently, this will often result in the collapse or displacement of building foundations. Water in the Antelope Valley is presently pumped from depths of 50 to 200 feet, and the water table is lower than historic levels (see Water Resource, II-A). Therefore, in most areas of Lancaster, the water table rarely comes within the 30 foot area defined by the State Division of Mines and Geology.

Identification of liquefaction zones is based primarily on the occurrence of groundwater in major alluvial deposits. The 1980 Lancaster General Plan and the Los Angeles County General Plan indicate a potential liquefaction zone area between downtown and Fox Field. However, due to groundwater overdrafting since 1980 the possibility that this liquefaction zone still exists is minimal. Subsequent groundwater testing in the Fox Field area confirmed that the previously identified liquefaction hazard was no longer a threat (Lancaster-Fox Field Redevelopment Area, 1984).

Differential Settlement The extremely thick alluvial deposits which underlay the study area would be subject to differential settlement due to the intense shaking associated with seismic events. This type of seismic hazard results primarily in the damage to property when an area settles to different degrees over a relatively short distance. The actual potential for settlement is, however, difficult to predict.

Landslides/Slope Stability Landslides and slope instability are a relatively minor hazard within the area, since it is generally underlain by granitic rock and is topographically relatively flat. The downslope movement of loose rock or boulders during strong groundshaking is the most likely slope hazard. The potential extent of this hazard would be limited to areas directly below the slopes of Quartz Hill and the buttes located in the western area of the study area. Modifications of these landforms could result in some hazardous slope instabilities. Areas with slopes less than 15 percent are generally considered suitable for all types of development. Those with a 15 to 25 percent slope are typically required to use hillside construction techniques to achieve substantial foundation support and stable soil conditions. Areas with slopes greater than 25 percent are subject to instability and erosion and are generally not recommended for development (Los Angeles County General Plan, 1980).

Seiching This phenomenon occurs when seismic groundshaking induces standing waves (seiches) inside of water retention facilities, such as reservoirs and water tanks. Such waves can cause the retention structures to fail and flood downstream properties. Seiching may be a potential hazard for the Little Rock Reservoir, Fairmont Reservoir, Palmdale Reservoir, or steel reservoirs or tanks.

f. Seismic Study Zones

To minimize human injury and structural damage from active and potentially active faults, the State of California has adopted the Alquist-Priolo Special Studies Zones Act. Signed into law on December 22, 1972 and effective March 7, 1973, this act required the State Geologist to map "Special Studies Zones" along the state's active and potentially active faults. Prior to approval of structures for occupancy within these zones, a geologic study must be undertaken to determine the precise location and necessary setbacks from identified faults. In addition, individual cities and counties can establish special or hazard management zones for faults that may not qualify as significant at the State level, but which may still represent a local seismic concern (Fault-Rupture Hazard Zones in California, California Division of Mines and Geology, 1988).

The principal fault most likely to produce a damaging earthquake in or near the City is the San Andreas Fault. The San Andreas Fault is among those active faults identified in the legislation where special land use planning considerations are required within one-eighth of a mile of an active fault to minimize the loss of life, injury, and property damage in the event of a major earthquake. Policies and criteria for dealing with seismic hazards were established to assist cities and counties, although the act does not preclude local governments from adopting more stringent requirements (California Division of Mines and Geology, Earthquake Planning Scenario, 1982). In Lancaster, areas close to the San Andreas Fault are generally unsuitable for development.

2. ANALYSIS

a. Geology

The City of Lancaster's local geology and proximity to the San Andreas Fault are the prime determinants of the level of groundshaking experienced. The City is essentially flat, and the only geomorphic features which deviate from the flatness are Quartz Hill in the southern portion of the City, and several buttes in the western portion of the study area.

In general, it is advisable not to develop land with slopes greater than 25 percent without significant building restrictions (Los Angeles County General Plan, 1980). Hillsides with slopes of 10-25 percent, or that contain soils or underlying formations that produce severe building constraints, require engineering studies to be performed to determine the most appropriate structural design. Older structures must be upgraded if they are to withstand a major earthquake, while new developments must conform to applicable seismic codes.

The grading ordinances are designed to address overwatering of slopes, improper placement of fill, poor soil compaction, and inadequate hillside grading. This ensures the stability of hillsides.

b. Risk Assessment: Earthquake Scenario

The following information is taken from their "Earthquake Planning Scenario" report (1982). The California Division of Mines and Geology predicts that a major earthquake (M 8.0 or greater) will strike southern California sometime in the next 20 years. It will probably occur somewhere along the south-central section of the San Andreas Fault. However, unlike the Fort Tejon earthquake, which struck California when it was only sparsely settled, a contemporary earthquake would affect millions of people dispersed throughout Southern California. Such an earthquake could exceed the response capability of the state and local communities.

A major earthquake occurring in the City of Lancaster could cause a great many casualties, extensive property damage, and other ensuing catastrophes. The time of day and season of the year could also have a profound effect on the number of dead and injured and the amount of damage sustained. Damage control and disaster relief support would be required from other local governmental and private organizations, as well as from the state and federal governments.

Extensive search and rescue operations may be required to assist trapped or injured persons. Emergency medical care, food and temporary shelter would be required by injured or displaced persons. Mass evacuation may be essential to save lives, particularly in areas affected by earthquake caused hazardous materials spills. Many families would be separated, particularly if the earthquake should occur during working hours, and a personal inquiry or location system would be essential to maintain morale. Emergency operations could be seriously hampered by the loss of communications, damage to transportation routes, and by the disruption of public utilities and services.

Extensive federal assistance would be required, and could continue for an extended period. These efforts would be required to remove debris and clear roadways, demolish unsafe structures, assist in reestablishing public services and utilities, and provide continuing care and welfare for the affected population, including temporary housing for displaced persons.

A major earthquake will produce a large number of households in the City who will require shelter until inspections and temporary repairs are made. The total estimated homeless population resulting from a major earthquake (according to the Demographic Information, City of Lancaster, January 1988) for the City is 5,170 persons. Of these, approximately 155 (or three percent) would be classified as long-term homeless because of severe damage to their homes.

There are five major hospitals in the Antelope Valley with a total of 750 beds. The earthquake is expected to eliminate approximately half (49 percent) of the available hospital beds in this area. Approximately a third (29 percent) of the hospital staffs are expected to be unavailable or injured, while almost three-quarters (71 percent) of the supplies are expected to be lost. ("Hospital Casualty and Damage Percentage," Department of Health Services, Los Angeles County, March 22, 1987).

Due to the expected severity of damage, the City of Lancaster's operations will likely be overloaded. The procedures that the City will follow in responding to an earthquake are outlined in its Multihazard Functional Plan, but the City must also rely on Los Angeles County for assistance. A limited amount of military resources and assistance will be available in the event of a regional disaster. In the event of a major earthquake, however, there may be an extended period of time before the County service can be provided. Therefore, appropriate actions would be implemented, including providing medical care to injured persons and/or continuing medical care to patients moved to facilities in evacuation areas. Coordination with the Red Cross, Salvation Army, and state and federal agencies would be necessary in order to locate and allocate emergency and temporary housing for injured persons. The City maintains an Emergency Operations Center (EOC) at City Hall to coordinate services during an earthquake (see III-H-3).

Although all of the California Aqueduct facilities were designed to resist damage from a major earthquake, serious damage to these facilities is inevitable. Seismologists recommend planning for a minimum of three months to make the repairs necessary to restore water to Southern California. The California Aqueduct will be subject to severe groundshaking and some damage where it crosses the western Antelope Valley. The Elizabeth Tunnel, which crosses the San Andreas fault 250 feet below the ground, could be seriously damaged and require more than 90 days to repair. The embankment of the Palmdale Reservoir may be severely damaged due to fault rupture and very intense groundshaking. However, the reservoir is very shallow, and poses no real threat to public safety.

The damage to local natural gas and electrical facilities will likely consist of isolated breaks in major transmission lines and numerous breaks in mains and individual service connections in the distribution systems. Sporadic fires should be expected at the sites of a small percentage of gas line ruptures in both transmission lines and the distribution system.

c. Definition of Risk

Based on this anticipated earthquake scenario, the study area faces three basic categories of risk which are defined as follows:

- *Acceptable/Tolerated Risk* The acceptable risk category includes hazards in which the threat to life or property is not severe enough to require specific action by government.

- *Unacceptable Risk* This category includes hazards in which the dangers to life and property are serious enough to warrant specific government action. Unacceptable risks also include all situations where there is no effective regulatory control to investigate and monitor the hazard.

- *Avoidable Risk* Avoidable risks are hazards in which the danger may be reduced by establishing policies that physically avoid, or at least mitigate, the risk. This category includes all situations in which a risk can clearly be lessened by careful structuring of a project.

Table III-A-5 compares land use compatibility in seismic shaking zones. The identification of buildings likely to suffer from a severe earthquake is important when evaluating levels of risk. These would include older buildings and critical-use structures such as hospitals.

d. Legislation

The 1933 Long Beach earthquake led to the first state and local laws requiring seismic resistance building designs. Buildings constructed prior to 1933 may offer little or no structural protection in a major earthquake.

The Uniform Building Code, a set of structural requirements for building construction and safety, did not require that single family homes be bolted to their foundations until 1952. Other than unreinforced masonry structures, the only buildings covered by retroactive laws are public schools. The state has regulated school safety requirements since the Field Act was adopted after the 1933 Long Beach earthquake (Title 24, State Building Standards Commission, 1987).

Although buildings constructed after 1933 offer a somewhat greater degree of earthquake resistance, it was not until after the 1971 San Fernando earthquake that building code requirements became even more stringent. The building code was changed to require positive anchorage of wall panels to floor and roof diaphragms. These requirements, however, are not retroactive to existing buildings.

Probably the most serious seismic hazard condition (although <u>not</u> the most widespread) in the City is the presence of unreinforced masonry buildings in the downtown area. Unreinforced buildings may be subject to collapse or substantial destruction during a moderate to severe earthquake. The Unreinforced Masonry Building Act (1986) requires cities and counties to prepare an "Inventory and Mitigation Plan" for all such buildings within their jurisdiction. It should be noted that, according to the State Historical Preservation Commission, buildings that are designated as having local historical significance are exempt from standard seismic upgrade requirements.

In 1989, the City of Lancaster conducted a survey of "potentially hazardous buildings." The survey indicated that only seven buildings within the City were of unreinforced masonry wall construction:

400-408 W. Lancaster Boulevard
519 W. Lancaster Boulevard
523 W. Lancaster Boulevard
44759 Sierra Highway
44911 Sierra Highway
44921 Sierra Highway
45541 Sierra Highway

Local agencies are required under SB-547 to establish a mitigation program for potentially hazardous buildings. The City of Lancaster has adopted Chapter 96 of the Los Angeles County Building Code. This chapter covers Potentially Earthquake Hazardous Buildings and meets State requirements for a mitigation program.

Table III-A-5
Land Use Compatibility In Seismic Shaking Zones

Land Uses	DEGREE OF COMPATIBILITY IN SEISMIC SHAKING ZONES		
	High Zone I	Medium-High Zone II	Medium Zone III
Critical Nuclear related systems; major dams; explosives or hazardous materials manufacturing, handling, or storage; hospitals, and other emergency medical facilities.	R	GU	PS
Essential Police, fire and communications systems; Emergency Operations Centers (EOC's); electric power inter-tie systems; power plants; small dams; utility substations; sewage treatment plants; water-works; local gas and electric distribution lines; aqueducts; major pipelines; major highways, bridges and tunnels; ambulance services; public assembly sites with 300 or more capacity; schools.	GU	PS	GS
High Occupancy Multi-family residential of 20 or more units; major commercial including large shopping centers, office buildings, large hotels, health care clinics, and convalescent homes; heavy industry; gas stations.	PS	PS	GS
Normal-Low Risk Single-family and two-family residential; multi-family of less than 20 units; small scale commercial; small hotels, motels; light industry; warehousing.	PS	GS	GS

R = Restricted
Restricted unless alternative sites are not available or feasible and it is demonstrated through a site investigation that, although mitigation may be difficult, hazards will be adequately mitigated.

GU = Generally Unsuitable
Restricted unless site investigation demonstrates that site is suitable or that hazards will be adequately mitigated.

PS = Provisionally Suitable
Requires site investigation to confirm suitability; may require some modification of facility design or sitting.

GS = Generally Suitable
Acceptable, however, if specific concerns are identified, a site investigation may be required.

Source: Modified from the Los Angeles County General Plan (1980) and the County of San Bernardino General Plan (1989).

e. Earthquake Planning

To adequately prepare its citizenry to respond to a major earthquake, the City may want to consider several steps:

- Annually review its "Multihazard Functional Plan" relative to earthquake preparedness programs and procedures to protect the public in case of a major earthquake. All public buildings should be inspected for seismic integrity, especially after any moderate (M 6+) seismic event, as it could cause structural damage that would otherwise go unnoticed.

- Work with the Red Cross, local schools, civic groups, and hospitals on an ongoing basis so that these institutions will be able to provide adequate services and resources after a major earthquake.

- Sponsor cooperative earthquake drills to test local response procedures.

- Periodically discuss disaster plans with local water, gas, electrical, and other utility companies to know how they will respond during a major earthquake.

- Discuss disaster planning with local military personnel on a regular basis to be aware of what services and facilities could be made available in the event of a major earthquake.

- Carefully plan for the adequate disbursal of City equipment, personnel, and facilities as development occurs to provide adequate emergency service after a major earthquake.

- Encourage residents and employers to learn about earthquake planning in the home and workplace.

- Periodically discuss how to handle multiple incidents, such as major fires or hazardous material incidents, during a major earthquake by addressing the City's "Multihazard Functional Plan."

Alquist-Priolo Zone Although the San Andreas Fault Zone is delineated as an Alquist-Priolo Special Study Zone within the study area, it is located in an area generally unsuitable for development. Therefore, it should pose no significant restriction to development ("Fault-Rupture Hazard Zones in California," California Division of Mines and Geology, 1988).

Seismic Testing Property owners, including private buildings and especially older and historical buildings, may be encouraged to have earthquake inspections to ascertain their seismic integrity by qualified personnel.

Liquefaction/Differential Settlement/Landslides Engineering studies as to the feasibility or the most appropriate design and construction techniques to mitigate potential problems are advisable for development in areas prone to liquefaction, differential settlement, or landslides. In general, lower density developments are typically encouraged in areas subject to these conditions.

Seiching Seiching studies for water storage tanks and significant water storage areas, such as Little Rock Dam, are often provided by appropriate agencies. It is important to notify property owners whose property is subject to potential inundation from seiching.

B. FLOODING AND DRAINAGE

1. EXISTING SETTING

a. Flooding

To protect the public from flood hazards, the Federal Emergency Management Agency (FEMA) maps local floodways and flood zones. FEMA provides cities and counties with maps that show the boundaries of 100-year and 500-year floods. The limits of these floods are based on the largest storm that could be expected to occur once every 100 and 500 years, respectively. In other words, these storms have a 1/100 and 1/500 chance of occurring in any given year. It should be noted that the 100-year and 500-year storms (and their floods) are only statistical concepts, and there is nothing that would prevent two 100-year storms from occurring in succeeding years either in the City or within the watershed (there would simply be a statistically low probability of occurrence).

Much of the City of Lancaster and its General Plan study area is susceptible to flooding because of its relatively flat topography (See Figure III-B-1). Flooding is largely caused by runoff from the San Gabriel and Sierra Pelona mountains to the south. The Antelope Valley drainage basin consists of a series of alluvial fans extending north from these mountains to the dry lake beds at Edwards Air Force Base. The basin has no natural outlet to the sea, which restricts the removal of runoff to percolation or evaporation.

Following short-term, low intensity rainfall, deep deposits of permeable sands absorb nearly all runoff by percolation as it flows out of the San Gabriel Mountains. However, following major storms, the sands become saturated and runoff from the mountains flows northward across the valley, often overflowing natural drainage channels. There are well defined channels in Antelope Valley, for example, Amargosa Creek and Little Rock Wash. However, flash flooding or extended periods of rain can cause these channels to flood. Runoff also flows over paved surfaces within the city and flows toward low lying areas to the north. Currently, the City is installing storm drain facilities to alleviate problems in some areas of the City (see Figure III-B-1).

Major floods in the Antelope Valley generally coincide with winter storms, which occur between November and April. The highest frequency and greatest intensity of winter flooding normally occurs between December and March. Infrequent thunderstorms during the summer and fall also produce major flash floods. Severe flooding events have been recorded for the following dates:

- September 24-26, 1939
- August 9-10, 1942
- January 21-24, 1943
- February 20-24, 1944
- August 4-5 and August 19-22, 1961
- January 18-27, 1969
- February 27 - March 3, 1983

b. Flood Hazards

Local drainage problems and flooding generally occur along natural tributaries. The City is protected only by the California Aqueduct from runoff originating in the Sierra Pelona and San Gabriel Mountains. Storm flows in the undeveloped portions of the study area are generally channeled through wide, north-south swales until intercepted by various flood control channels or natural creek beds. Sheet flooding can occur when the capacities of washes and dry stream beds are exceeded. However, sheet flooding can also occur due to factors unrelated to the overflow of washes and stream beds, such as runoff directed across level basin areas.

The following is a list of natural tributaries that constitute flood hazards within the Lancaster area (See Figure III-B-2):

- *Amargosa Creek* This creek runs north from Portal Ridge (Sierra Pelona Mountains) and enters the Antelope Valley along Elizabeth Lake Pine Road near the intersection of 25th Street West and Avenue Q. Major manmade channels have altered the natural course of Amargosa Creek, which now flows north along the Antelope Valley Freeway, dividing into two flows between Avenues N and O. The western flow ends in a retention basin located north of Avenue H and west of 20th Street West. The eastern branch generally follows a northerly course, and eventually merges with other natural channels.

- *Anaverde Creek* This creek collects runoff from the Sierra Pelona Mountains and flows east through Anaverde Valley towards the Southern portion of Palmdale. It then flows northwest and generally becomes undefined once it gets to the vicinity of Plant 42.

- *Little Rock Creek* Little Rock Creek begins at the outflow of Little Rock Dam and consists of runoff from the San Gabriel Mountains in Little Rock Canyon. The Creek passes west of the City of Little Rock and travels in northerly direction to Rosamond Playa (dry lake bed).

- *Neenach Wash* This wash collects runoff from La Liebre Rancho and travels due east until it merges with runoff from the Fairmont Wash. Waters from the wash eventually enter the City along 40th Street West and Avenue D.

- *Fairmont Wash* This wash collects of runoff from Broad Canyon in Portal Ridge and from the Fairmont and Antelope Buttes. The wash flows north until reaching Avenue D, where it changes to an easterly direction and eventually reaches Rosamond Playa.

- *Mira Loma Wash* This wash collects runoff from Portal Ridge and travels east along Avenue I, and veers north at 30th Street West where it merges with other natural channels.

- *Cottonwood/Antelope Wash* This wash collects runoff from the Tehachapi Mountains and travels southeast across the Kern County line spreading east through the Little Buttes area, north of State Highway 138, and finally going north toward Rosamond Dry Lake Bed.

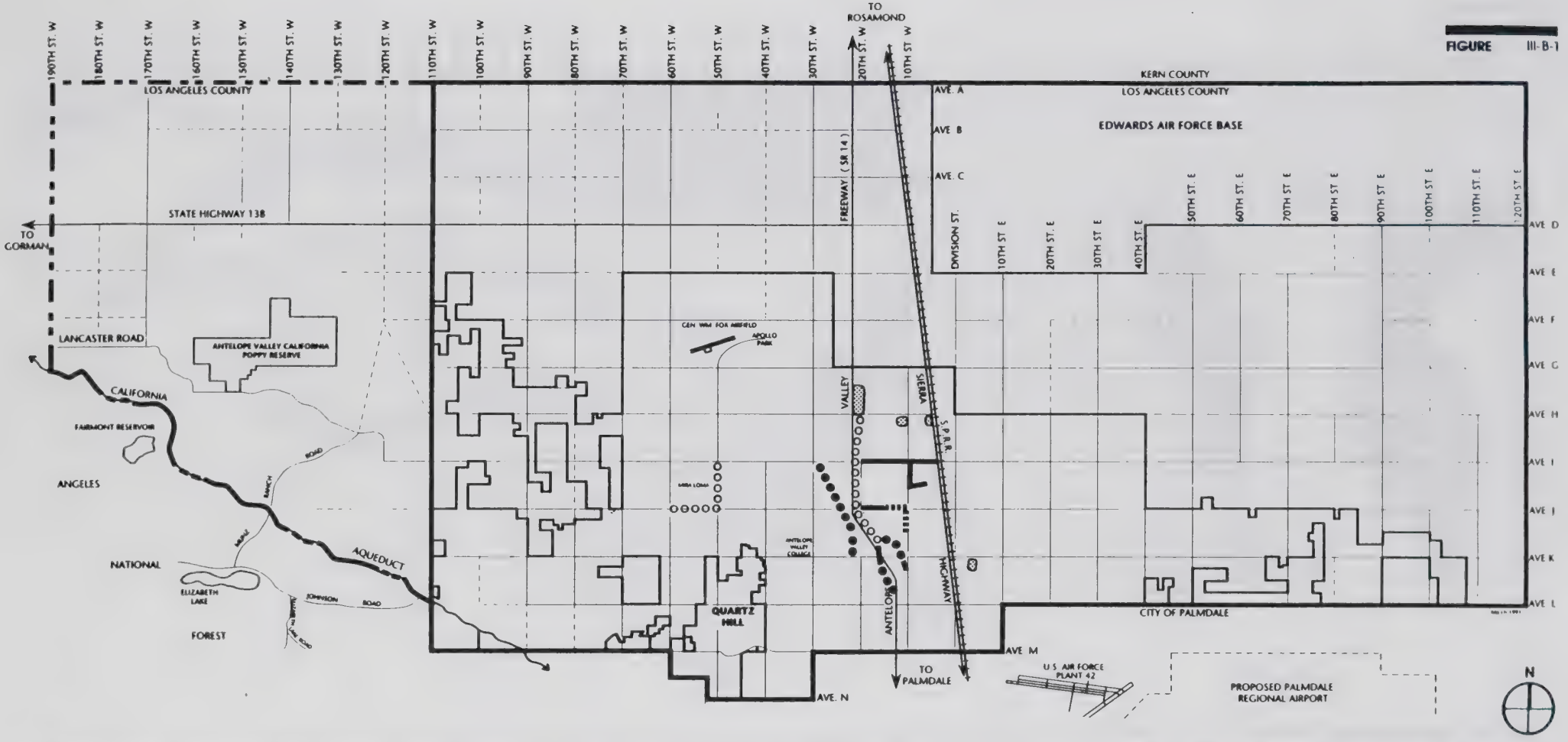


FIGURE III-B-1

PLANNING NETWORK

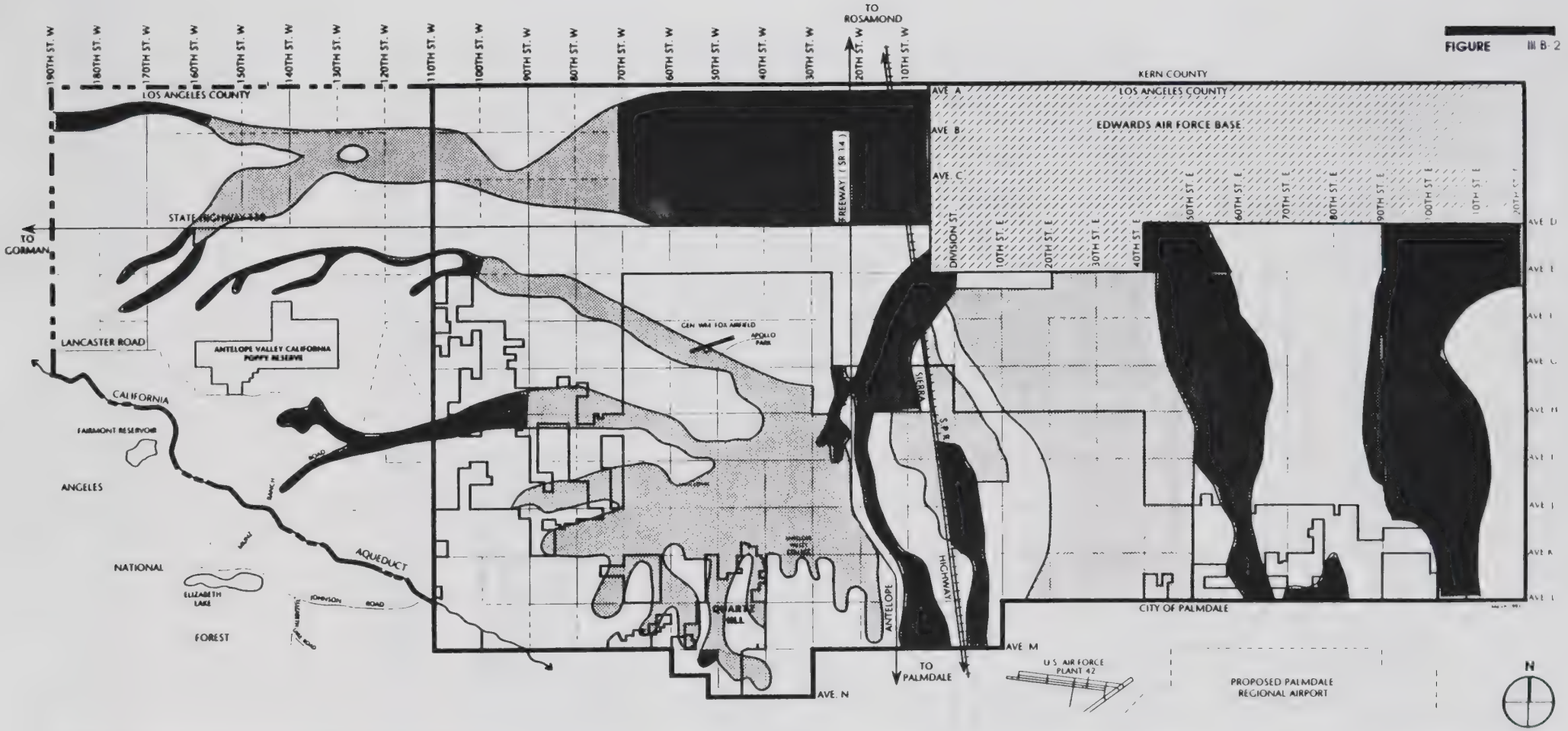
- Existing Earthen Channel
- Concrete Channel
- Existing Storm Drain
- Proposed Storm Drain
- Existing Retention Basin

SOURCE: City of Lancaster, Master Plan of Drainage.

CITY FLOOD CONTROL STRUCTURES

CITY OF LANCASTER GENERAL PLAN

FIGURE III B-2



PLANNING NETWORK

- Minimal Flood Hazard Area
- 100 Year Flood Hazard Area
- 100-500 Year Flood Hazard Area
- No Data Available

FLOOD HAZARD AREAS

CITY OF LANCASTER
GENERAL PLAN

c. Flood Zones

The current Flood Insurance Rate Map (FIRM), as published by the Federal Emergency Management Agency (FEMA), indicates that the study area contains the following four types of flood zones (See Figure III-B-2):

- Zone A-areas inundated during in a 100-year flood.
- Zone B-areas inundated during a 500 year flood.
- Zone C-areas of minimal flooding.
- Zone D-areas of possible, but presently unproven, flood hazards.

Because most local reservoirs are buried below grade, the risk of flooding due to reservoir failure is very low. However, the California Aqueduct and Little Rock Reservoir present some risk of overflow as indicated by FEMA.

In the event of a major earthquake, the Aqueduct might be breached. During such a break, millions of gallons of water could spill north across the western portion of the study area. Failure of the Little Rock Dam will result in the inundation of a 300-foot wide area for 0.25 mile north of the dam. Seismologists recommend planning for a minimum of three months to make the repair necessary to restore water to Southern California. Along this length the water depth will continually drop from 50 to 15 feet.

d. Flood Control

The Los Angeles Department of Public Works developed the "Antelope Valley Master Plan of Drainage" in 1985, which remains the most recent plan for flood hazard abatement. The Master Plan is designed to be a comprehensive plan for the construction of flood deterrent facilities in the Antelope Valley. Ultimately, a series of regional retention/detention basins with paved or graded channels will drain the study area. However, until these improvements are made, the Lancaster area will be susceptible to periodic regional flooding.

As lands are developed, their natural absorption capabilities are reduced and flood waters are redirected. The Master Plan of Drainage calls for the construction of local retention/detention basins until the regional system can be established. The City of Lancaster Public Works Department estimates that only about five to ten percent of the regional system has been implemented, mostly in the Amargosa Creek watershed. Local flood conveyance facilities are built in conjunction with the planned regional system on an individual, project by project basis. Current City policy requires that new development dedicate lands necessary to complete the regional system.

The City and the County are discussing a possible consolidation of drainage plans, and are identifying various options to address regional drainage needs.

e. Flood Plain Management

Development occurring in FEMA Flood Zone (A) falls under FEMA requirements that are referenced in the City's Building Code. The Code requires structures to be built at least one foot above the level of the (100-year) "design flood" without raising flood hazard levels on adjacent lands and site specific mitigations for other areas. Development in FEMA Flood Zone (B) does not require any special mitigations.
The Los Angeles County Flood Control District maintains a system of flood-holding basins and conveyance corridors. It uses a combination of natural, open channels and covered conduits to divert flood waters to holding (retention or detention) basins.

Rural sections of the study area which are prone to flooding, but do not utilize drainage corridors, are called flood plain management paths. Flood plain management is a method used by the County to locate development outside of flood hazard areas until adequate facilities are installed. County maintained flood management paths, drainage corridors, and flood control basins are illustrated in Figure III-B-3, while Figure III-B-1 shows existing flood control structures in the City of Lancaster.

2. ANALYSIS

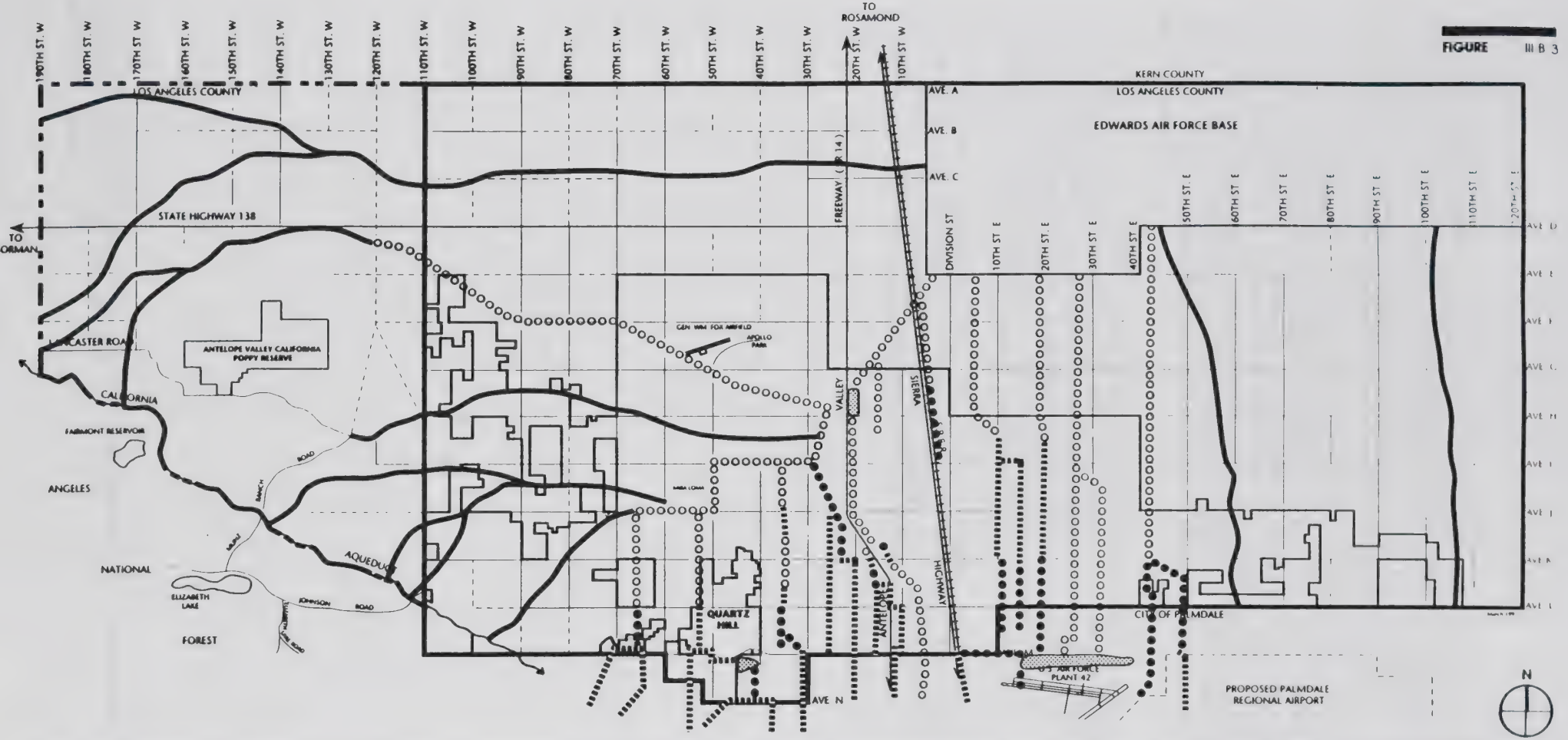
Implementation of the facilities as would be described in an updated Antelope Valley Master Plan of Drainage would provide the greatest protection against flood hazards. However, only a small percentage of the entire regional system has been built. The lack of funding availability is cited as the primary obstacle to construction of the system. The City has adopted a policy of requiring developers to construct local retention/detention and flood conveyance facilities. The cumulative effect of this policy has been the development of a largely uncoordinated drainage system. Under certain conditions, this type of system can serve to aggravate flood hazards. Developers have also been required to dedicate lands that will ultimately accommodate planned regional facilities. A new regional drainage study will allow the City to implement appropriate regional facilities for its rapidly urbanizing area.

Continual consultation with County officials will be important for future construction of the regional drainage system. Potential funding solutions could include the creation of special districts, such as Community Facility Districts, an assessment district, a local bond issue, or private/public joint ventures.

A majority of the flood hazard areas are considered County Flood Plain Management Paths, where development is restricted. The County also uses open channels and flood control basins to direct flood waters to recharge basins in the area. Closed conduits are utilized in the Quartz Hill area to Avenue L.

The County of Los Angeles is discussing a proposed drainage plan with the residents of Quartz Hill. The plan entails building drainage channels in the area to mitigate drainage problems in Quartz Hill, as well as cross county downstream flooding. This drainage plan is very expensive, and is said to have relatively little chance of being built, due to the cost (Lancaster City Engineer, 1990).

FIGURE III B 3



REGIONAL FLOOD CONTROL STRUCTURES

PLANNING NETWORK

- Floodplain Management Path
- Earthen Channel
- Concrete Channel
- Storm Drain
- Retention Basin

SOURCE: Los Angeles County Comprehensive Plan of Flood Control and Water Conservation, January, 1987.

CITY OF LANCASTER
GENERAL PLAN

As the Antelope Valley is urbanized, the increase in impervious area from developments will produce additional surface runoff that will, in turn, increase peak storm water flow rates in drainage courses. The City of Palmdale is also experiencing an increase in surface runoff because of rapid urbanization which, due to Lancaster's downslope location relative to Palmdale, could increase flooding in Lancaster. This increased runoff will likely be transferred out of the study area by existing or future flood control facilities. This could further reduce surface renewal of the dry lake beds at Edwards Air Force Base. One solution to this problem might be to prioritize which drainage courses have historically provided the majority of materials deposited on the lake beds. A large detention basin (or a series of basins) could be constructed to reduce bulking and the salt-laden waters could be piped to an outlet at the dry lake beds. This would allow development of the intervening land and still provide for adequate flood control and dry lake renewal.

Development occurring in existing "Flood Plain Management Areas" (as defined by the County) must comply with local building codes and subdivision ordinances. However, it is advisable to have drainage courses and dry washes in their natural state whenever possible, or until permanent facilities can be constructed. These areas serve as natural recharge basins in addition to providing vital habitat for wildlife species (see Biological Resources, II-C).

As development occurs and new flood control facilities are constructed, developers may be relieved of more restrictive land use flood control requirements. The City may want to provide updated information to the Federal Emergency Management Agency to revise the Flood Insurance Rate Maps.

C. NOISE

1. EXISTING SETTING

a. Fundamentals of Noise

Noise is an unavoidable by-product of modern mechanized civilization, and has long been an accepted part of urban life. Noise, defined as unwanted sound, is principally caused by the operation of machinery for transportation (automobiles, trucks, trains, and aircraft) and machinery for production (industry and construction). Major sources of noise within the Lancaster General Plan study area include the Antelope Valley Freeway and the arterial roadway system; aircraft operations related to Air Force Plant 42 (Palmdale Regional Airport), Fox Field, and Edwards Air Force Base; and the Southern Pacific Railroad line.

The general background level of noise has been rising as the Antelope Valley and City of Lancaster grow. Along with this growth and increased level of noise comes the need for a better understanding of the causes, effects, and mitigation of noise within the manmade environment (see Technical Appendix to the General Plan -- Noise Report).

Various noise rating schemes are introduced below, followed by a discussion of typical noise levels of familiar noise sources, noise attenuation with distance, and other basic considerations related to noise in the environment.

(1) Noise Rating Schemes

Noise levels are measured on a logarithmic scale in units referred to as "decibels." This unit expresses an exponential increase, whereby an increase of 10 decibels represents a tenfold increase in the sound generated. In order to describe "average noise levels," the measurements are then weighted and added over a specified time period to reflect not only the magnitude of the sound, but also its duration, frequency, and time of occurrence. In this manner, various acoustical scales and units of measurement have been developed, such as: equivalent sound level (Leq), day-night average sound level (Ldn), Community Noise Equivalent Level (CNEL), and Single Event Noise Exposure Levels (SENEL).

The decibel scale has a value of 1.0 Db at the threshold of hearing and 140 dB at the threshold of pain. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. Therefore, a 1.0 decibel increase is just audible, whereas a 10 decibel increase means the sound is perceived as being twice as loud as before.

A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source. Sound levels are thus adjusted to reflect only those frequencies audible to the human ear.

Examples of the decibel level of various noise sources are shown in Figure III-C-1. They include: the quiet rustle of leaves (10 DBA), a soft whisper (20 to 30 dBA), the hum of a small electric clock (40dBA), ambient noise outdoors or in a kitchen (50 dBA), normal conversation at five feet (55 dBA), and a busy street at 50 feet (75 dBA).

Equivalent sound levels are not measured directly. They are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) is the constant level that, over a given time period, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the Ldn and CNEL scales.

Day-night average sound levels (Ldn) are a measure of the cumulative noise exposure of the community. The Ldn value results from a summation of hourly Leq's over a 24-hour time period with an increased weighing factor applied to the nighttime period between 10:00 PM and 7:00 AM. This noise rating scheme takes into account those subjectively more annoying noise events which occur during the normal sleeping hours.

Community Noise Equivalent Levels (CNEL) is similar to Ldn, except that an additional weighing factor is applied to evening hours between 7:00 PM and 10:00 PM. Maximum CNEL levels can be used in locating sensitive land uses in areas where high noise levels exist or are expected. For example, as stipulated by this plan, the maximum recommended noise standard is less than 65 CNEL for single family residential land uses. If the ambient noise environment is typically 65 dBA during the daytime (7:00 PM - 7:00 PM), 50 dBA during the evening hours (7:00 PM - 10 PM), and 45 dBA during the nighttime (10:00 PM-7:00 AM), then the CNEL value would be less than 60.

The Single Event Noise Exposure Level (SENEL) is the most appropriate noise level duration rating scale for a single noise occurrence. The SENEL, given in decibels, is the noise exposure level of a single event measured over the time interval between the initial and final times for which it exceeds the threshold noise level.[1]

(2) Effects of Traffic Volume and Speed, Truck Mix and Atmospheric Conditions on Noise

The noise levels adjacent to line sources of noise, such as roadways, increase by approximately 3.0 dBA with each doubling of traffic volume (provided that the speed and truck mix do not change). From the mathematical expression relating increases in the number of noise sources (motor vehicles to the increase in the adjacent noise level), it can be shown that a 26 percent increase in the traffic volume will cause a 1.0 dBA increase in adjacent noise levels. However, changing the vehicle speed has an even more dramatic effect.

Increasing the vehicle speed from 35 to 45 mph raises adjacent noise levels approximately 2.7 dBA. Raising the speeds from 45 to 50 mph increases adjacent noise levels by 1.0 dBA. A speed increase from 50 mph to 55 mph increases adjacent noise levels by 0.9 dBA. Consequently, lowering motor vehicle speeds can have a significant impact in terms of reducing adjacent noise levels.

The truck mix on a given roadway also has a significant effect on adjacent noise levels. As the percentage of trucks on a roadway increases, adjacent noise levels increase. This effect is more pronounced if the number of heavy duty (3+ axle) trucks is large when compared to the number of medium duty (2 axle) trucks.

Noise levels adjacent to roadways vary with the volume of traffic, the mean vehicular speed, the truck mix, and the road cross-section. Figure III-C-2 provides a nomograph for various roadway types which allows the CNEL at either 50 or 100 feet to be determined from the daily two-way traffic volume and the speed of vehicles.[2] For example, an urban arterial roadway carrying 10,000 ADT with a posted speed limit of 50 mph would generate approximately 63.7 CNEL at 100 feet. Lowering the speed to 45 mph reduces the CNEL at 100 feet to 62.5 dBA. Similarly, at a speed of 40 mph, the CNEL at 100 feet would be 61.3 dBA.

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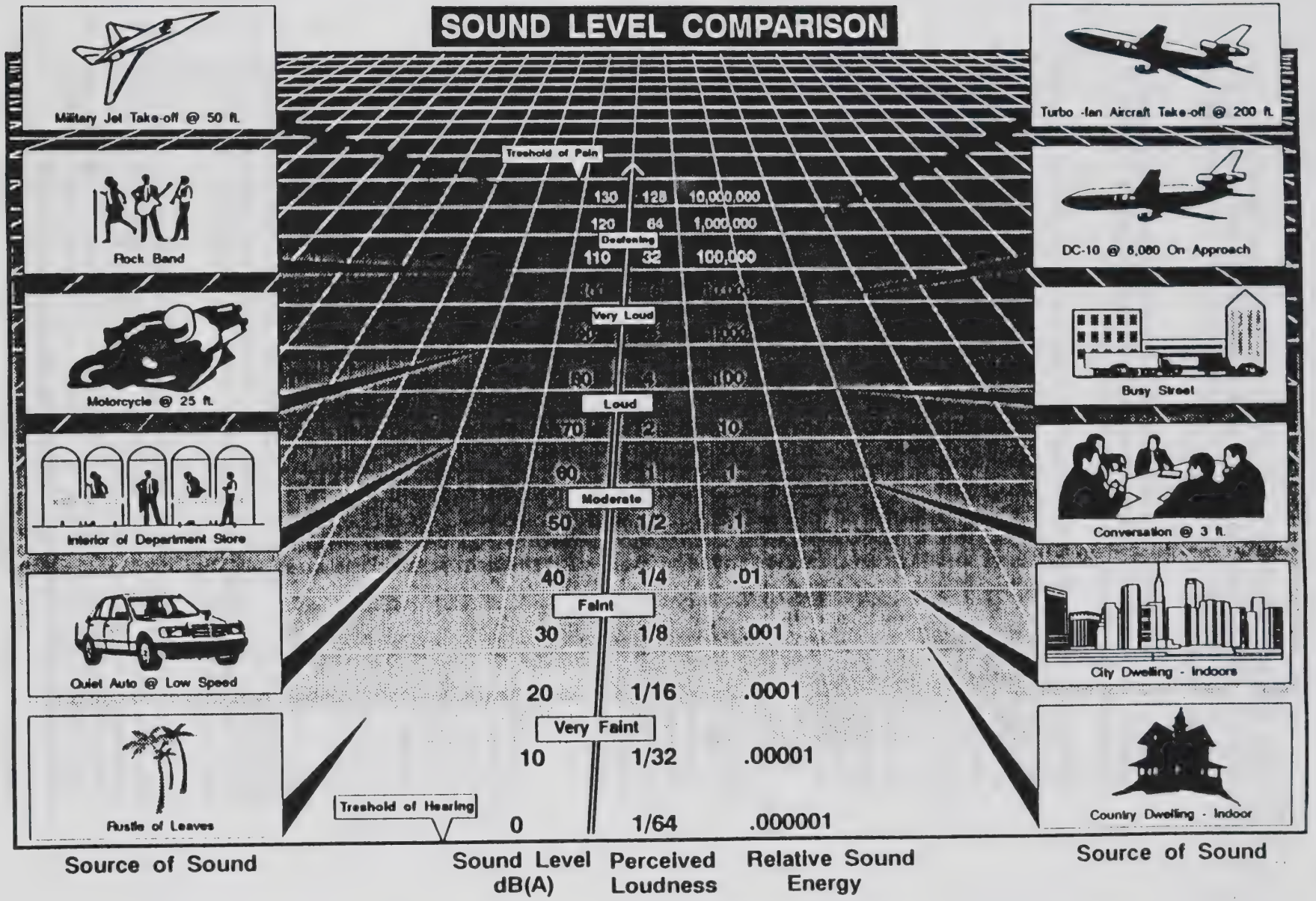
1 Source: Title 21 California Administrative Code, Airport Noise Regulation; Section 5006.

2 Figures 13 and 14 assume a truck mix of 2.58%.



Source: Coffman and Associates.

FIGURE III-C-1

Figure III-C-2 illustrates the effects of truck mix on adjacent noise levels. As shown, an arterial street carrying 10,000 ADT at 40 mph would generate 62.2 CNEL at 100 feet if the truck mix were 10 percent of the ADT. A five percent truck mix would result in 60.9 CNEL at 100 feet.

Figure III-C-3 can be used as a general guide for planning purposes to determine potential "worst case" future noise levels and the setbacks needed to insure an acceptable noise environment for planned land uses.

Atmospheric effects seldom have a significant effect on noise levels at the short distances that adjacent residences are located from roadways. In some instances, however, short term, intermittent atmospheric effects can be significant. These temporary effects are not taken into account for steady-state noise control. Moreover, any effect created by these atmospheric factors would be masked by larger variations due to topography, ground absorption, vehicular speed, roadway alignment, and manmade noise barriers.

Figure III-C-4 provides design noise levels adjacent to a typical arterial, major, secondary, and local roadways. The figure assumes an ultimate daily design capacity for each roadway type, as well as a typical design speed and a 2.58 percent truck mix.

b. Human Reactions to Sound

Approximately 20 million people in the United States currently have some degree of hearing loss. In many of these cases, exposures to very loud, impulsive, or sustained noise caused damage to the inner ear, which could be substantial even before a hearing loss was actually noticed. To prevent the spread of hearing loss, a desirable goal would be to minimize the number of noise sources which expose people to sound levels above 70 decibels. However, hearing impairment is only one of the harmful effects of noise on people.

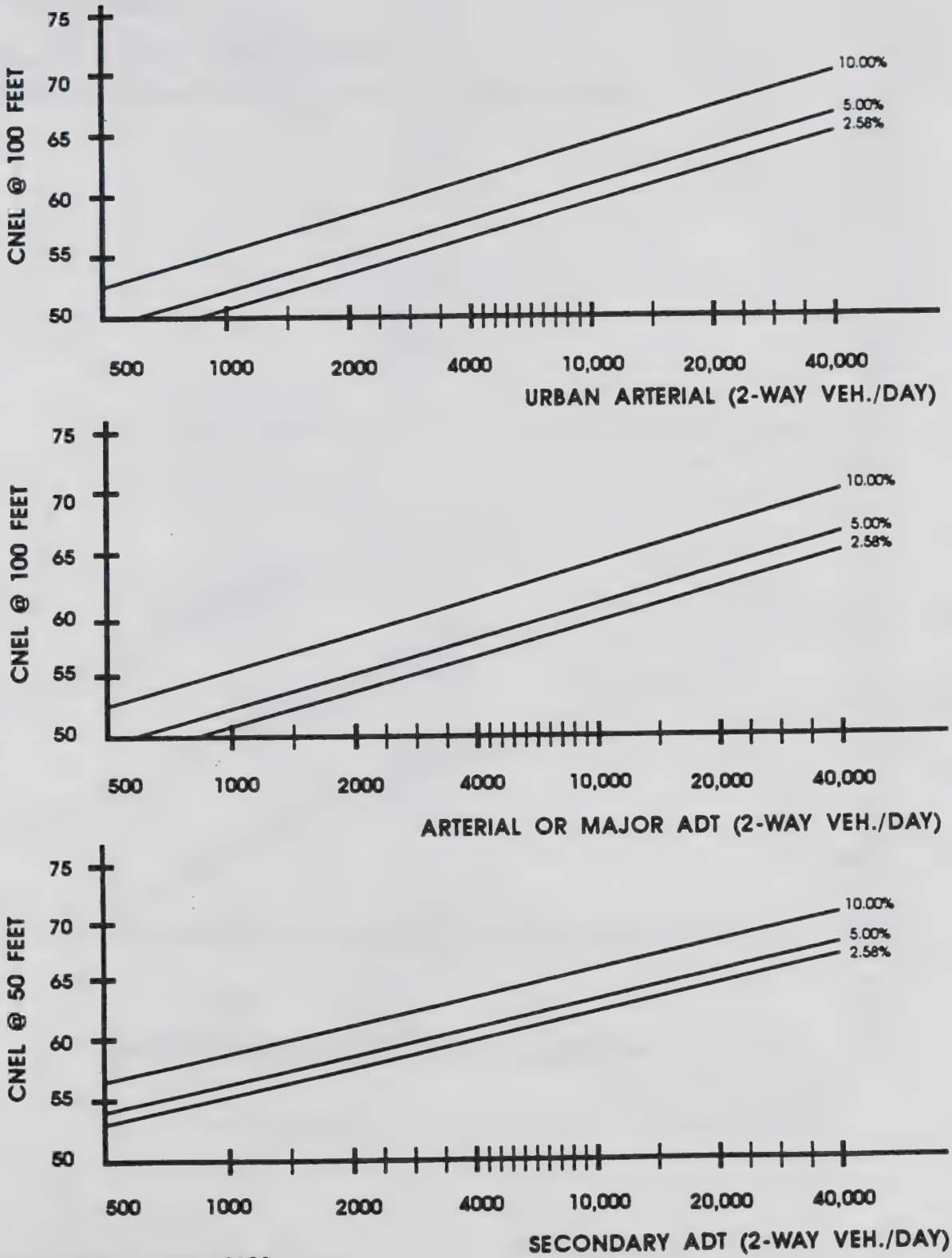
(1) Physical and Psychological Responses

Noise can also cause a variety of temporary physical and psychological responses in humans. Temporary physical reactions to passing noises range from a startle reflex to constriction in peripheral blood vessels; the secretion of saliva and gastric juices; and changes in heart rate, breathing patterns, the chemical composition of the blood and urine, dilation of the pupils of the eye, visual acuity, and equilibrium. The chronic recurrence of these physical reactions has been shown to aggravate headaches, fatigue, digestive disorders, heart disease, circulatory and equilibrium disorders. Noise is a contributing factor in stress-related ailments such as ulcers, high blood pressure, and anxiety.

Two harmful effects of noise involve speech interference and the prevention or interruption of sleep. Figure III-C-5 illustrates how excessive background noise can reduce the amount and quality of conversation, and thereby impact education, family lifestyles, occupational efficiency, and the quality of recreation and leisure time.

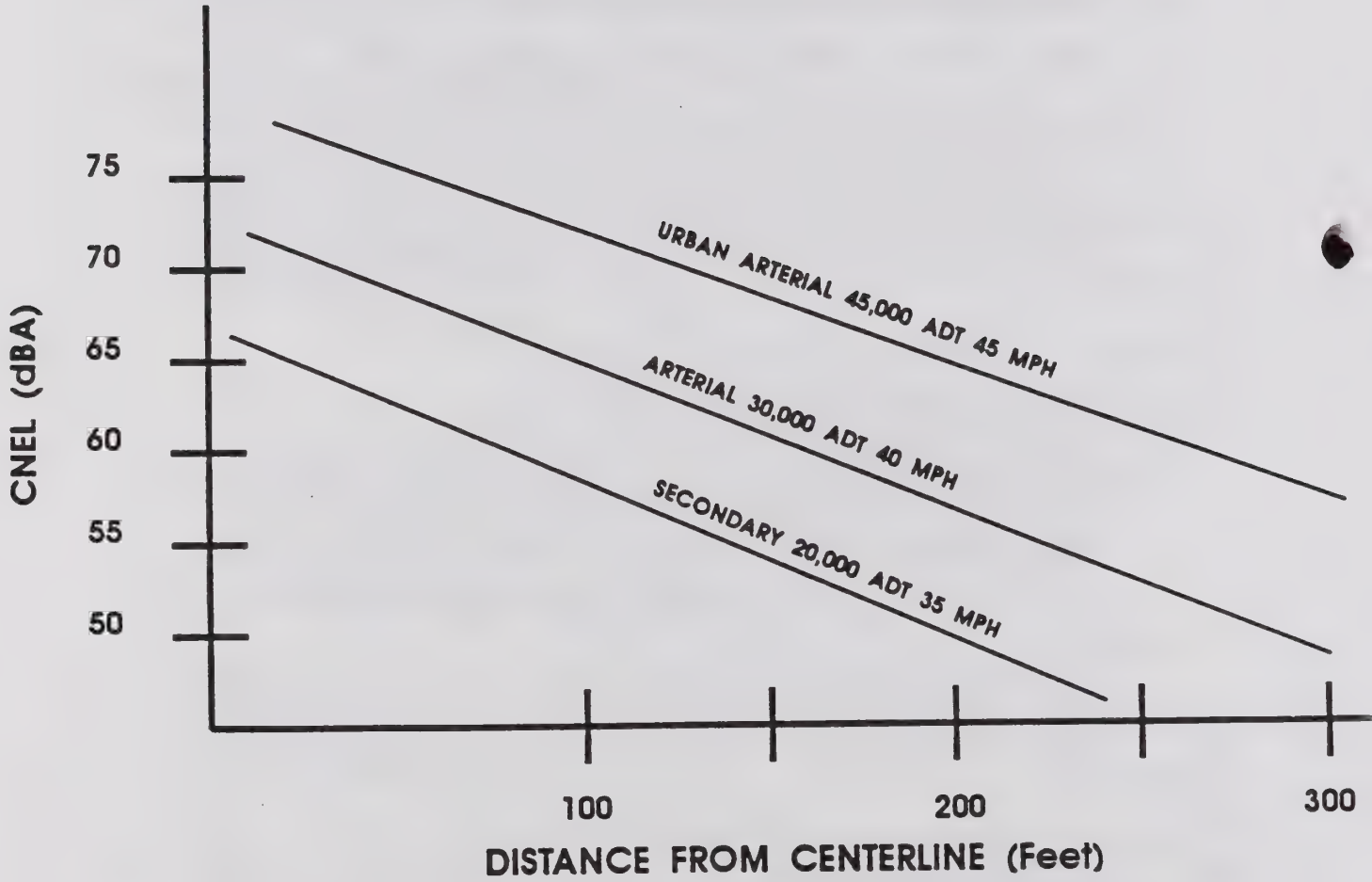
As shown, speech interference begins to occur at about 50-60 decibels and becomes severe at about 60 decibels. Background noise levels affect performance and the learning process through distraction, reduced accuracy, increased fatigue, annoyance and irritability, and the inability to concentrate (particularly when complex tasks are involved or in schools where younger children exhibit imprecise speech patterns and short concentration spans).

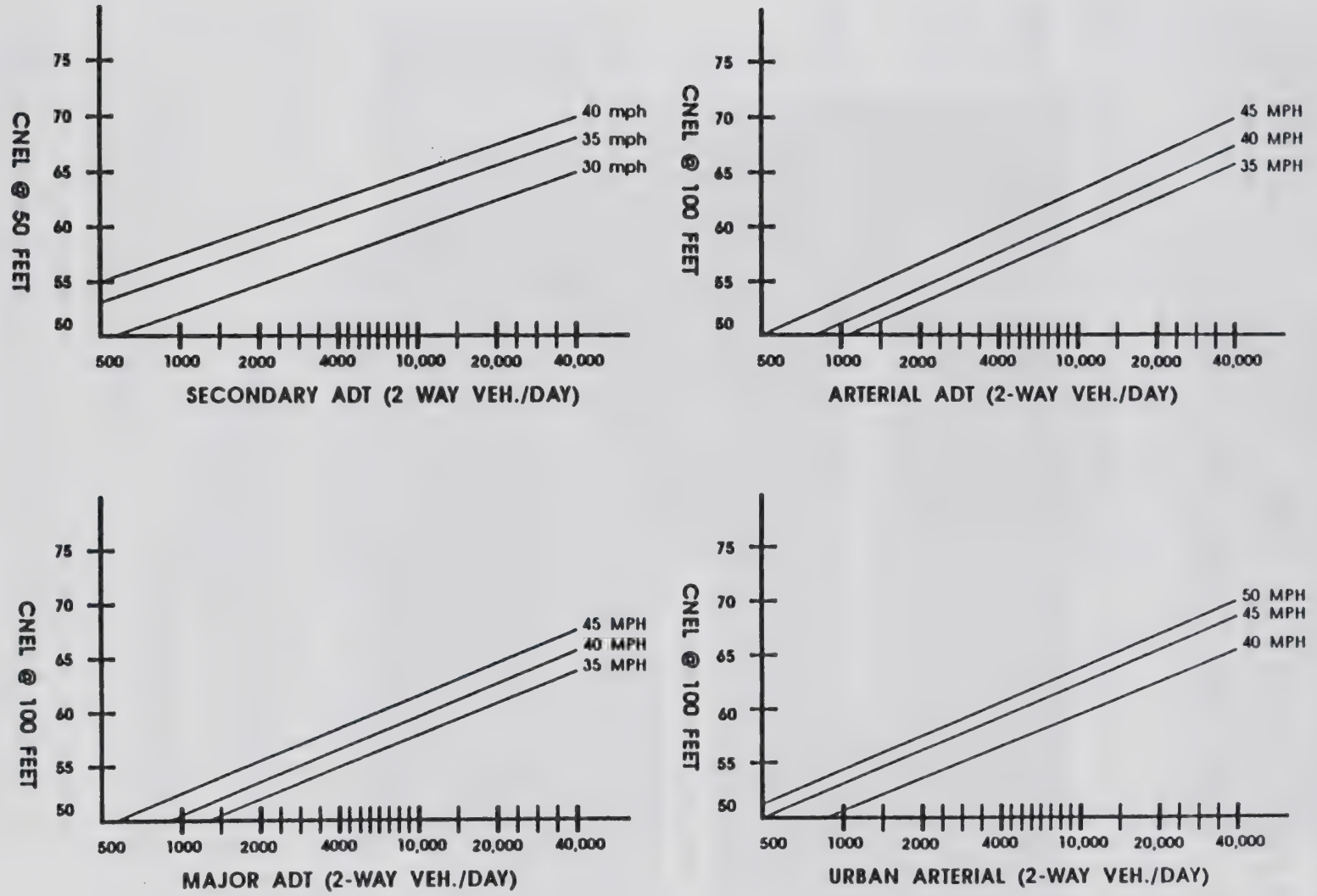
EFFECTS OF TRUCK MIX ON CNEL AT 40 MPH



SOURCE: Endo Engineering, 1988.

DESIGN NOISE LEVELS





TYPICAL NOISE LEVELS VERSUS SPEED AND VOLUME

FIGURE III-C-4

SOURCE: Endo Engineering, 1988.

CITY OF LANCASTER STATE OF THE CITY REPORT
PUBLIC HEALTH AND SAFETY

Several factors determine whether or not a particular noise event will interfere with or prevent sleep. These factors include the noise level and characteristics, the stage of sleep, the individual's age, and motivation to waken. Sick or elderly people are particularly susceptible to noise-induced sleep interference, which can occur when intruding noise levels exceed the typical 35-45 decibel background noise level in bedrooms. Sleep prevention can occur when intruding noise levels exceed 50 dBA. Table III-C-1 summarizes the harmful effects of noise discussed above.

Table III-C-1
Harmful Effects of Noise

Effect	Noise Levels At Which Harmful Effects Occur
Prevention or Interruption of Sleep	35 - 45 dBA
Speech Interference	50 - 60 dBA
Extra Auditory Physiological Effects	65 - 75 DBA
Hearing Loss	75 - 85 dBA

Source: California Department of Public Health Report to 1971 Legislature.

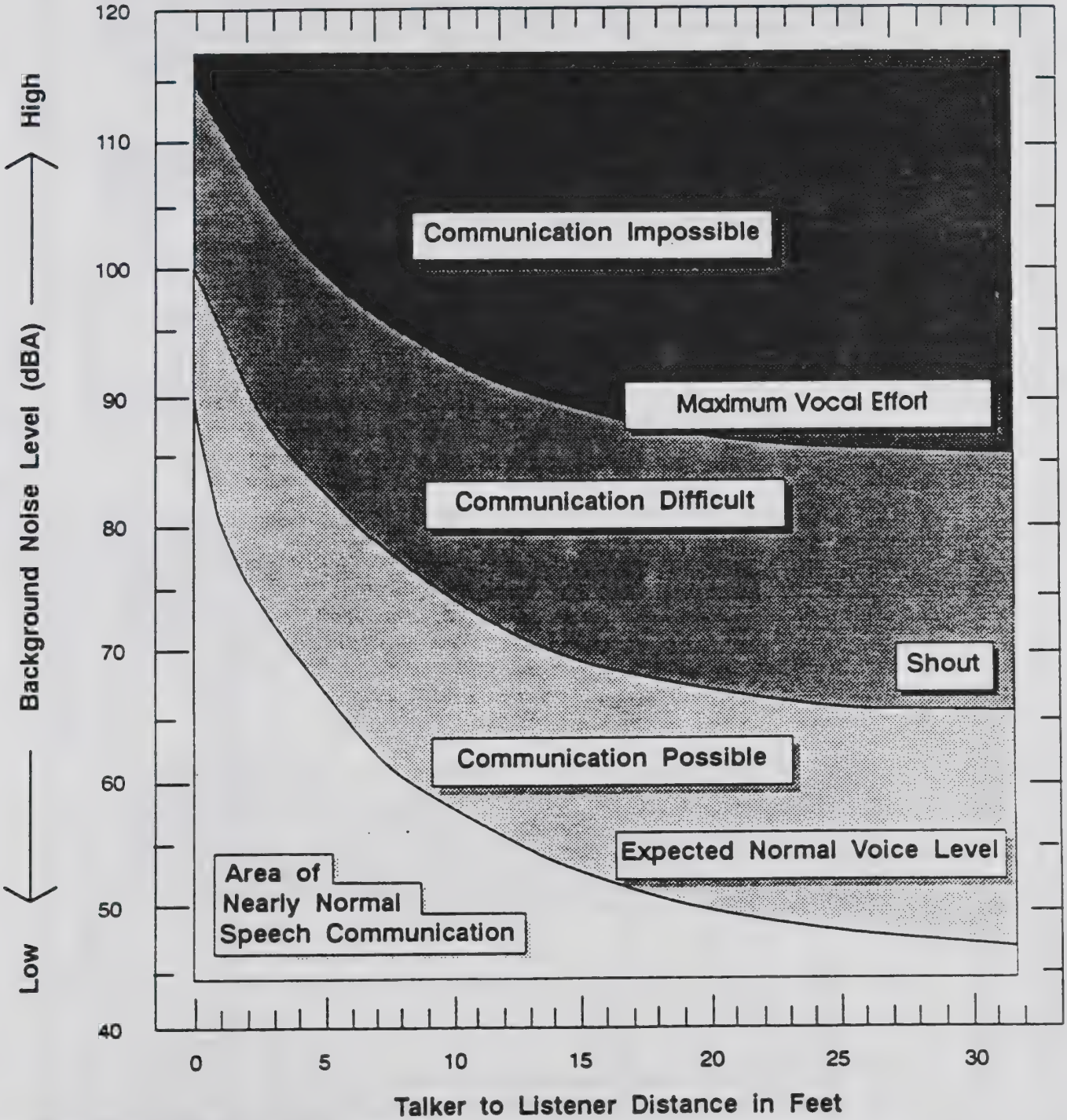
(2) Community Response To Noise

Approximately 10 percent of the population have such a low tolerance for noise that they object to nearly any noise not of their own making. Consequently, even in the quietest manmade environment, some complaints will occur. Another 25 percent of the population will not complain even in very severe noise environments.[1] Thus, a variety of reactions can be anticipated from people exposed to any given noise environment. Despite this, the population as a whole can be expected to exhibit the following responses to changes in noise levels: an increase or decrease of 1.0 dBA cannot be perceived except in carefully controlled laboratory experiments; a 3.0 dBA increase is just noticeable outside of the laboratory; an increase of 5.0 dBA is often necessary before any noticeable change in community response (i.e. complaints) occurs.[2]

1 "Literature Survey for the FHA Contract on Urban Noise", Report No. 1460, BB&N, January 1967.

2 "Noise Manual"; Caltrans, 1980 and "National Cooperative Highway Research program Report 117", HRB, 1971.

SPEECH COMMUNICATION AS A FUNCTION OF BACKGROUND NOISE LEVEL



Source: Miller, "Effects of Noise on People", Journal of Acoustical Society of America, V.56,No.3, Sept.,1974.

Table III-C-2 details the effects of noise on individuals living in various noise environments and predicts the average community reaction to various sound levels in a residential setting. As shown, hearing loss may begin to occur at 75+ Ldn, and the noise environment will be highly annoying to 37 percent of the population. Residents who live in noise environments of 70 Ldn are not likely to experience hearing loss; however, 25 percent will be highly annoyed, and noise will be viewed as one of the most important adverse aspects of the community environment. At 65 Ldn, hearing loss will not occur, and 15 percent of the population will be highly annoyed by the noise environment. As shown in Table III-C-2, at very low noise exposures, up to 13 percent of the population will display a high degree of annoyance, even though complaints might not be registered. At the other end of the spectrum, even in communities exposed to noise levels between 75 and 80 Ldn, only 15-20 percent of the population will register a complaint, despite the fact that more than half are highly annoyed by the noise environment.

Community responses to noise may range from registering a complaint by telephone or letter to initiating court action, depending upon each individual's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance[1]. These include:

- fear associated with the aircraft activities (fear of a plane crash);
- socioeconomic status and educational level of the residents;
- resident's belief that they are being treated unfairly;
- attitudes regarding the usefulness of the activity creating the noise; and
- resident's belief that the noise source could be controlled.

Recent studies have shown that changes in long-term noise levels, measured in units of Ldn or CNEL, are noticeable and that people respond. About 10 percent of the people exposed to traffic noise of 60 Ldn will report being highly annoyed with the noise, and each increase of one Ldn is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 Ldn or aircraft noise exceeds 55 Ldn, people begin complaining. Group and legal actions to stop the noise generally occur when traffic noise levels approach 70 Ldn and aircraft noise levels approach 65 Ldn.[2]

c. Land Use Compatibility with Noise

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial activities. For this reason, land use compatibility in terms of the noise environment is an important consideration in the planning and design of new development. The mismanagement of noise impacts can also impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop, and work.

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1 U.S. EPA, "Public Health and Welfare Criteria for Noise," July 1973.

2 State of California, Department of Health Services, Dr. Jerome Lucas, July 11, 1984.

Table III-C-2
Effects of Noise on People[1]

Effects[2]	Hearing Loss	Speech Interference		Annoyance[3]	Average Community Reaction[4]	General Community Attitude Towards Area
		Indoor	Outdoor			
Day-Night Average Sound Level in Decibels	Qualitative Description	% Sentence Intelligibility	Distance in Meters for 95% Sentence Intelligibility	% of Population Highly Annoyed[5]		
75 and above	May Begin to Occur	98%	0.5	37%	Very Severe	Noise is likely to be the most important of all adverse aspects of the community environment.
70	Will Not Likely Occur	99%	0.9	25%	Severe	Noise is one of the important adverse aspects of the community environment.
65	Will Not Occur	100%	1.5	15%	Significant	Noise is one of the important adverse aspects of the community environment.
60	Will Not Occur	100%	2.0	9%	Moderate to Slight	Noise may be considered an adverse aspect of the community environment.
55 and below	Will Not Occur	100%	3.5	4%		Noise considered no more important than various other environmental factors.

Source: U.S.D.O.T. "Guidelines for Considering Noise in Land Use Planning and Control," 1980.

1 Research implicates noise as a factor producing stress-related health effects such as heart disease, high-blood pressure and stroke, ulcers and other digestive disorders. The relationships between noise and these effects, however, have not as yet been quantified.

2 "Speech Interference" data are drawn from the following tables in EPA's "Levels Document"; Table 3, Figure D-1, Figure D-2, Figure D-3. All other data from National Academy of Science 1977 report "Guidelines for Preparing Environmental Impact Statements on Noise, Report of Working Group 69 on Evaluation of Environmental Impact of Noise.:

3 Depends on attitudes and other factors.

4 Attitudes or other non-acoustic factors can modify this. Noise at low levels can still be an important problem, particularly when it intrudes into a quiet environment.

5 The percentages of people reporting annoyance to lesser extents are higher in each case. An unknown small percentage of people will report being "highly annoyed" even in the quietest surrondings. One reason is the difficulty all people have in integrating annoyance over a very long time.

Table III-C-3
Percentage Of Persons Highly Annoyed
Who Register Complaints
As A Function Of Ldn

Noise Level Ldn (dBA)	Percentage of Highly Annoyed	Percentage of Complaints
50	13	Less Than 1
55	17	1
60	23	2
65	33	5
70	44	10
75	54	15
80	62	Over 20

Source: U.S. EPA, "Public Health and Welfare Criteria for Noise," July 27, 1973.

(1) Federal Guidelines and Standards

The Federal Highway Administration (FHWA) has developed a series of maximum design noise levels for various activity categories which are expressed in terms of equivalent sound levels (Leq) and L_{10} values[1]. These design noise levels are commonly used on federally funded road projects or projects for which federal review or Caltrans review is anticipated.

The FHWA design noise levels represent maximum values and incorporate tradeoffs between desirable and feasible noise levels (recognizing that in many cases lower noise exposures would result in even greater community benefits). The design levels appear in Table III-C-4, and are to be applied to:

- those undeveloped lands for which development is planned, designed, and programmed on the date of public knowledge of the highway or other federally funded construction project,
- those activities and land uses in existence on the date of public knowledge of the project,
- those areas which have regular human use and in which a lowered noise level would be of benefit.

[1] L_{10} values are noise levels exceeded ten percent of the time. They are commonly used to express peak hour noise levels (since peak hour traffic volumes are typically 10 percent of the daily traffic volume). Leq values are typically 3 dBA lower than L_{10} values for the same time period.

Table III-C-4
Design Noise Level/Activity Relationship

Activity Category	Design Noise Levels Leq(h)	L_{10}(h)	Description of Activity Category
A	57 dBA (exterior)	60 dBA	Tracts of lands in which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular public or private parks or portions of parks, open spaces, or historic districts which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B	67 dBA (exterior)	70 dBA	Public areas, recreation areas, playgrounds, active sports areas, and public or private parks which are not included in Category A, and residences, motels, hotels, public meeting rooms, schools, churches, libraries and hospitals.
C	72 dBA	75 dBA	Developed lands, properties or activities not included in Categories A or B above.
D	--	--	Undeveloped lands: for requirements of undeveloped lands see paragraphs 11a and c in FHPM 7-7-3. Noise abatement is not required unless development is imminent and noise abatement as part of the highway project is warranted by the difficulty and increased cost of incorporating abatement measures later.
E	52 dBA (interior)	55 dBA	Residences, motels, hotels, schools, churches, public meeting rooms, libraries, hospitals, and auditoriums.

Source: Federal Highway Administration's Program Manual FHPM 7-7-3.

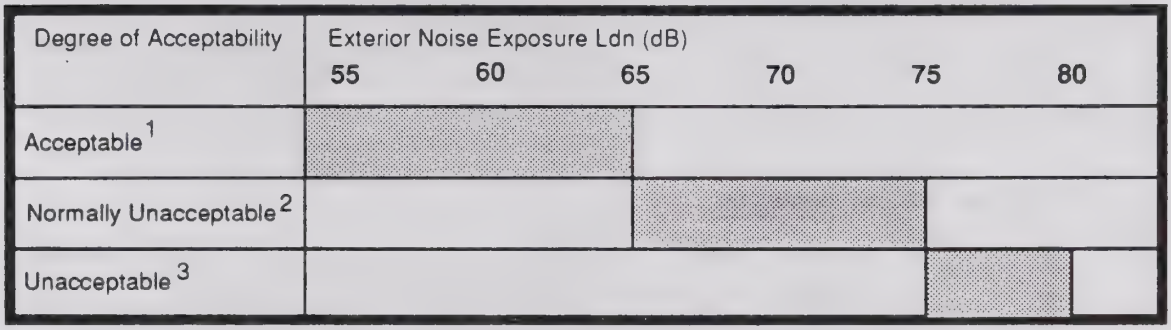
1 Either L_{10} or Leq (but not both) design noise levels may be used on a project.

The FHWA noise abatement criteria establish an exterior noise goal for residential areas of 67 Leq and an interior goal of 52 Leq. These criteria apply to private yard areas and assume that typical wood frame homes provide 10 dB (outdoor to indoor) noise reduction with windows open, and a 20 dB reduction with windows closed. Windows are assumed to be open, unless there is firm knowledge that they are, in fact, kept closed almost every day of the year (i.e. non-openable windows).

Figure III-C-6 and Table III-C-5 indicate HUD policies used to determine eligibility for financial backing for new or rehabilitative residential construction in noise impacted areas. If the noise environment is determined to be normally unacceptable using Table III-C-5, financial assistance from HUD would still be possible if noise insulation provides adequate exterior to interior noise reduction.

Measures that reduce the external noise at a site are preferred, when feasible, over measures which only provide attenuation for interior spaces. HUD generally prohibits construction of new noise sensitive land uses in areas with day/night noise levels that exceed 75 dBA.

Figure III-C-6
Federal Exterior Noise Acceptability Criteria For Housing



INTERPRETATION

1 Acceptable

The noise exposure may be of some concern, but common building construction will make the indoor environment acceptable and the outdoor environment reasonably pleasant for recreation and play.

2 Normally Unacceptable

The noise exposure is significantly more severe; barriers may be necessary between the site and prominent noise sources to make the outdoor environment acceptable; special building constructions may be necessary to ensure that people indoors are sufficiently protected from outdoor noise.

3 Unacceptable

The noise exposure at the site is so severe that the construction cost to make the indoor noise environment acceptable may be prohibitive, and the outdoor environment would still be unacceptable.

Source: Federal Register V.44 n.135, Thursday, July 12, 1979.

The EPA has identified the relationship between noise levels and human response as shown in Table III-C-6. Over a 24-hour period, an Leq (daily equivalent sound level) of 70 dB will result in some hearing loss. Interference with activity and annoyance will not occur if outdoor levels are maintained at an energy equivalent of 55 dB and indoor levels are at or below 45 dB. While these levels are relevant for planning and design, they are not land use planning criteria because they do not consider economic cost, technical feasibility or the development needs of the community. The EPA noise levels are guidelines for informational purposes.

Table III-C-5
HUD External Noise Exposure Standards
For New Residential Construction

HUD Approval	Site Noise Exposure	Noise Level (Ldn)	Special Approval/Requirements
Standard	Acceptable	Not exceeding 65 dB	None
Discouraged	Normally Acceptable	65 dB to 75 dB	Building sound attenuation of 5 dB for 65-70 dB noise level and 10 dB for 70-75 dB noise level. Special Environmental Clearance Approval of Regional Administration
Prohibited	Unacceptable	75 + dB	Approval of Assistant Secretary of Community Planning EIS required

Source: Federal Register v.44 n.135, Thursday, July 12, 1979[1]

[1] Subsequent to original publication, it has been learned that a later Federal Register listing deleted HUD noise exposure standards for residential rehabilitation.

Table III-C-6
Noise Levels and Human Responses

Effect	Level	Area
Hearing Loss	Leq (24) ≤ 70 dB	All Areas
Outdoor Activity Interference and Annoyance	Ldn ≤ 55 dB	Outdoors in residential areas where people spend time
	Leq (24) ≤ 55 dB	Outdoor areas where people spend a limited amount of time
Indoor Activity Interference and Annoyance	Ldn ≤ 45 dB	Indoor residential
	Leq (24) ≤ 45 dB	Other indoor areas with human activities (e.g. schools)

Source: EPA, "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," March 1974. Leq (24) represents the sound energy averaged over a 24-hour period, while Ldn represents the Leq with a 10 dB nighttime weighing. "Areas" refers to residential, industrial, commercial, and recreational areas, unless otherwise specified.

(2) State Guidelines and Standards

The State Aeronautics Act specifies 65 dB CNEL as the criterion which airports must meet to protect existing residential communities from unacceptable exterior exposures to aircraft noise. The exterior maximum of 65 CNEL is given as the level deemed acceptable to a reasonable person residing in urban residential areas where houses are of typical California construction and may have windows partially open. It has been selected with reference to speech interference, sleep interference, and community reaction.

Section 1092 of Title 25, Chapter 1, Subchapter 1, Article 4, of the California Administrative Code includes noise insulation standards which detail specific requirements for new multi-family structures (hotels, motels, apartments, condominiums, and other attached dwellings) located within the 60 CNEL contour adjacent to roads, railroads, rapid transit lines, airports or industrial areas.[1] An acoustic analysis is required showing that these multi-family units have been designed to limit interior noise levels with doors and windows closed to 45 CNEL in any habitable room. Title 21 of the California Administration Code (Subchapter 6, Article 2, Section 5014) also specifies that noise levels in all habitable rooms do not exceed 45 CNEL.

Section 65302 (g) of the Government Code specifies that it is the responsibility of the local agency preparing the General Plan to specify the manner in which the noise element will be integrated into the zoning plan and tied to the Land Use Element, Circulation Element, and the local noise ordinance. The Noise Element, once adopted, also becomes the guideline for determining compliance with the State noise insulation standards discussed above. The Office of Noise Control, established by the California Noise Control Act of 1973, has developed criteria and guidelines for local agencies for use in setting standards for human exposure to noise and preparing noise elements. These guidelines are summarized in Figure III-C-7. Noise considerations are incorporated into the Plan For Physical Development and the Plan For Physical Mobility.

Each locality, in developing its Noise Element, must make a determination regarding how much noise is too much. A community's sensitivity to noise may be taken into account by starting with the general guidelines in Figure III-C-7, and then applying the adjustment factors shown in Table III-C-7. These allow acceptability standards to be set which (1) reflect the desires of the community and its assessment of the relative importance of noise pollution, and (2) are below the known levels of health impairment.

(3) City of Lancaster Noise Standards

Figure III-C-7 is a land use compatibility chart for community noise which has been prepared by the California Office of Noise Control as a planning guideline that was adopted by the City of Lancaster. It diagrammatically identifies "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable" noise levels for various land use types. Table III-C-7 lists correction factors which can be used to modify the compatibility assessments described in Figure III-C-7.

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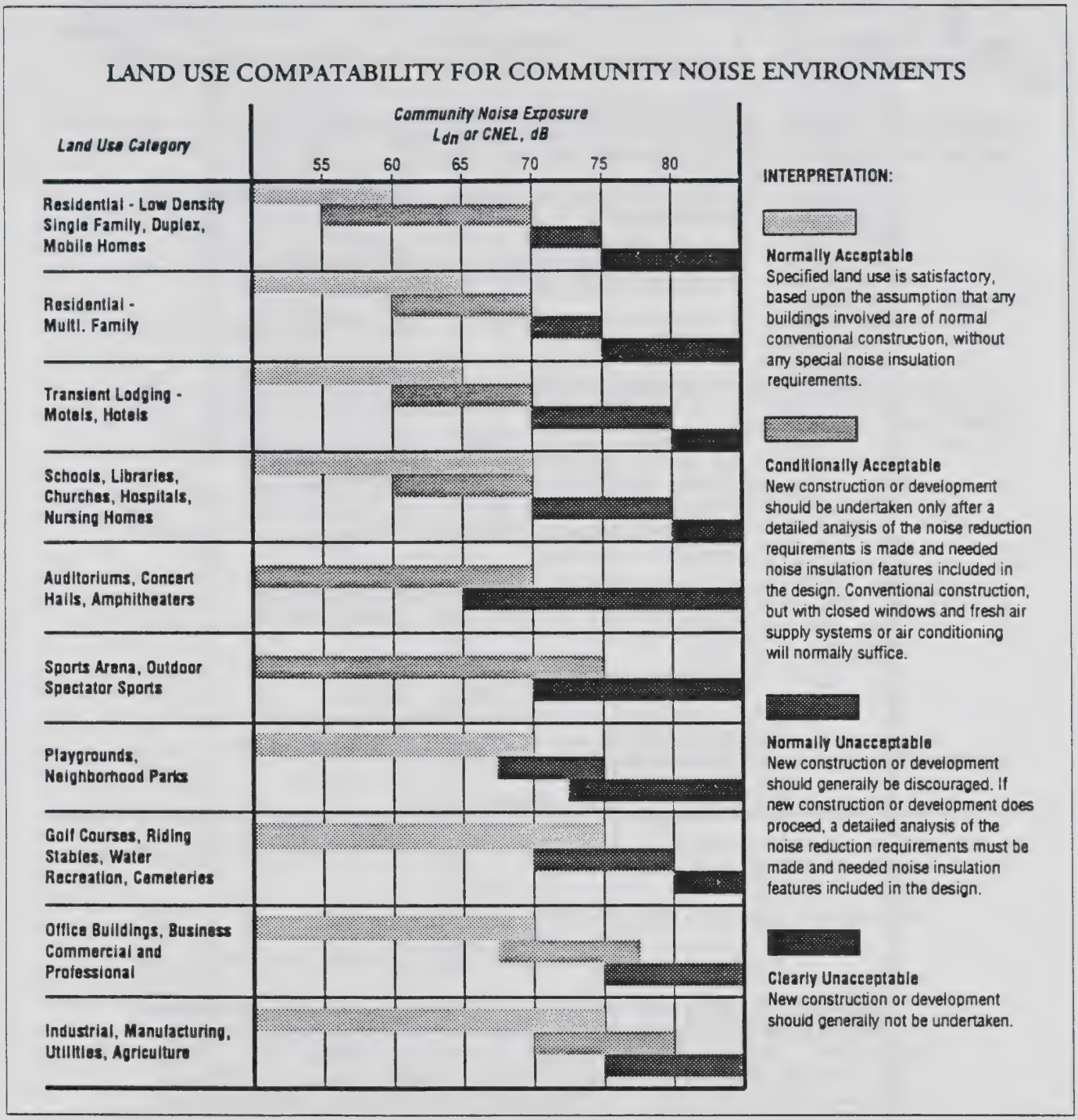
[1] An exception is made for railroads where there are no nighttime (10pm to 7am) operations and where daytime (7am to 10pm) operations do not exceed four per day.

Figure III-C-7
Land Use Compatibility For Community Noise Environment



Source: State of California General Plan Guidelines, 1990.

Table III-C-7
Normalized CNEL Corrections

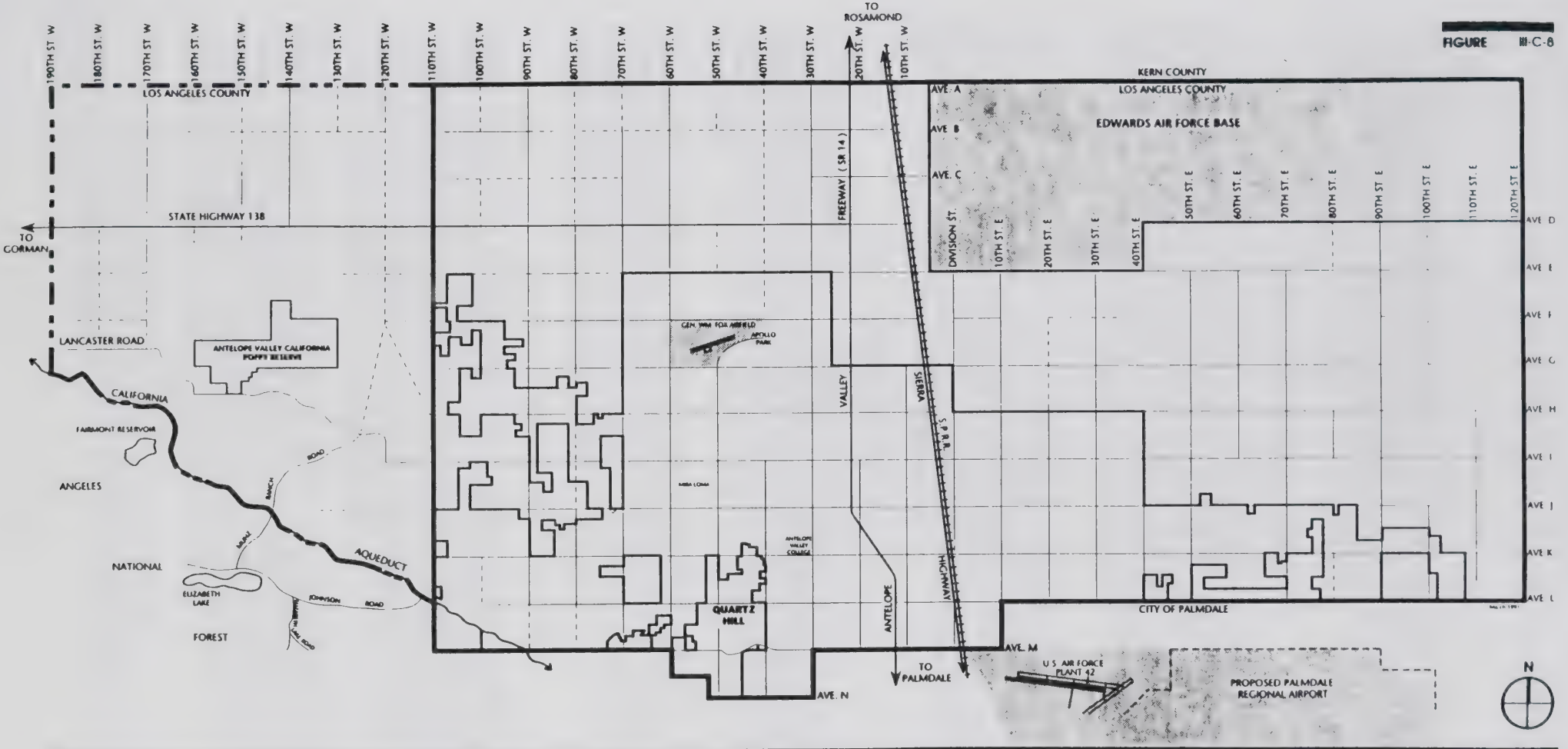
Type of Correction	Description	Measured CNEL[1] Change (dBA)
Seasonal Correction	Summer (or year-round operation).	0
	Winter only (or windows always closed).	-5
Correction for Outdoor Residual Noise Level	Quiet suburban or rural community (remote from large cities and from industrial activity and trucking).	+10
	Quiet suburban or rural community (not located near industrial activity).	+5
	Urban residential community (not immediately adjacent to heavily travelled roads and industrial areas).	0
	Noisy urban residential community (near relatively busy roads or industrial areas).	-5
	Very noisy urban residential community.	-10
Correction for Previous Exposure and Community Attitudes	No prior experience with the intruding noise.	+5
	Community has had some previous exposure to noise but little effort is being made to control the noise. This correction may also be applied in a situation where the community has not been exposed to the noise previously, but the people are aware that bona fide efforts are being made to control the noise.	0
	Community has had considerable previous exposure to the intruding noise and the noise maker's relations with the community are good.	-5
	Community aware that operation causing noise is very necessary and it will not continue indefinitely. This correction can be applied for an operation of limited duration and under emergency circumstances.	-10
Pure Tone or Impulse	No pure tone or impulsive in character.	0
	Pure tone or impulsive character present.	-5

Source: "Guidelines for the Preparation and Content of Noise Elements of the General Plan," California Office of Noise Control, February 1976.

1 Corrections to be added to the measured CNEL to obtain normalized CNEL.

As shown therein, single family and multi-family homes are "normally acceptable" in exterior noise environments up to 60 CNEL and "conditionally acceptable" up to 70 CNEL. Schools, libraries, hospitals, convalescent facilities, and churches are "normally acceptable" up to 70 CNEL. Industrial uses are "normally acceptable" up to 75 CNEL, as are office buildings for business, commercial, and professional uses.

FIGURE III-C-8



PLANNING NETWORK

AIRPORT LOCATIONS

SOURCE: Planning Network

AIRPORT LOCATIONS

CITY OF LANCASTER
GENERAL PLAN

A "conditionally acceptable" designation implies that new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use type is made and needed noise insulation features are incorporated in the design. By comparison, a "normally acceptable" designation indicated that conventional construction can occur with no special noise reduction requirements.

d. City of Lancaster Noise Environment

As a prerequisite to the formation of an effective noise control program, a community must be cognizant of the location and extent of local noise problems; namely, major noise source locations and what levels of exposure exist. An inventory of noise sources can be utilized to focus noise control and abatement efforts to achieve the most good. In some cases, the control of offending noise sources will be beyond the City's jurisdiction; however, by recognizing these limitations, more effective land use strategies can be developed.

Two types of noise sources within Lancaster need to be considered: stationary and mobile. Stationary sources of noise include: airports; industrial and construction activities; air conditioning/refrigeration units; whistles or bells (signaling breaks or shift changes); high level radio, stereo, or television usage; power tools; lawnmowers; appliances used in the home; and barking dogs. Mobile noise sources are typically transportation-related, and include aircraft, trains, automobiles, trucks, buses, and off-road vehicles.

(1) Aircraft and Airport Noise

Noise exposure contours around airports are determined from the number and type of aircraft using the airport, the magnitude and duration of each fly over, flight paths, and the time of day when flights occur. The Airport Noise Standards contained in Title 4 of the California Administrative Code specify that airports shall not permit noise exposures of 65 CNEL or greater to extend into residential or school areas.

There are three primary sources of air traffic affecting noise levels within the City of Lancaster: (1) General William J. Fox Airfield; (2) Edwards Air Force Base; and (3) Air Force Plant 42 (Palmdale Regional Airport). All three airport locations are indicated on Figure III-C-8. In addition, heliports are operated at the Mira Loma Detention Facility and the Antelope Valley Hospital.

(a) General William J. Fox Airfield

General William J. Fox Airfield is presently a minor source of aircraft noise in the City of Lancaster. It is currently the only general aviation facility in the Lancaster/Palmdale area. The Fox Field Master Plan developed in 1984 indicates an operational level in excess of 60,000 aircraft movements annually and projects operations for the year 2003 to be 440,000. However, according to officials at the airfield, aircraft operations during 1989 totaled 154,779, and they estimate a maximum for the year 2003 of only 250,000[1] operations.

The Master Plan addressed extensions of the east and west ends of Runway 6/24 and other improvements that will allow the airport to accommodate larger aircraft. Since the Master Plan was developed in 1984, there has been an increase in small twin-engine commercial plane activities and a decrease in private recreation-oriented planes. An air charter service occasionally operates out of the airfield, but no continual commuter service is available at this time.

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1 Source: Mr. Tom Lowry, Fox Field Assistant Airport Manager; April 1990.

Runway lighting was also addressed in the Master Plan for safe use of the field during noise sensitive evening hours. The majority of current operations occur during daylight hours, and operations decrease significantly after dusk. During the sensitive hours of 7:00 PM to 7:00 AM, less than five percent of the daily operations occur, with only one or two flights after midnight.

Private single and twin-engine aircraft are based out of Fox Field. The mix of aircraft included small jets, turboprops, and reciprocating engine aircraft. Noise contours for the airport, provided in the Master Plan for operations during 1983, are depicted in Figure III-C-9. As shown therein, the 70 CNEL contour falls completely within the airport boundaries, and the 65 CNEL exceeds the property limits only on a small area directly west of 30th Street West. Fox Field noise contours for the year 2003 were developed for 440,000 annual operations as shown in Figure III-C-10. Since operations at the airport have more than doubled since 1983, the current contours will be located somewhere between those found in Figures III-C-9 and III-C-10.

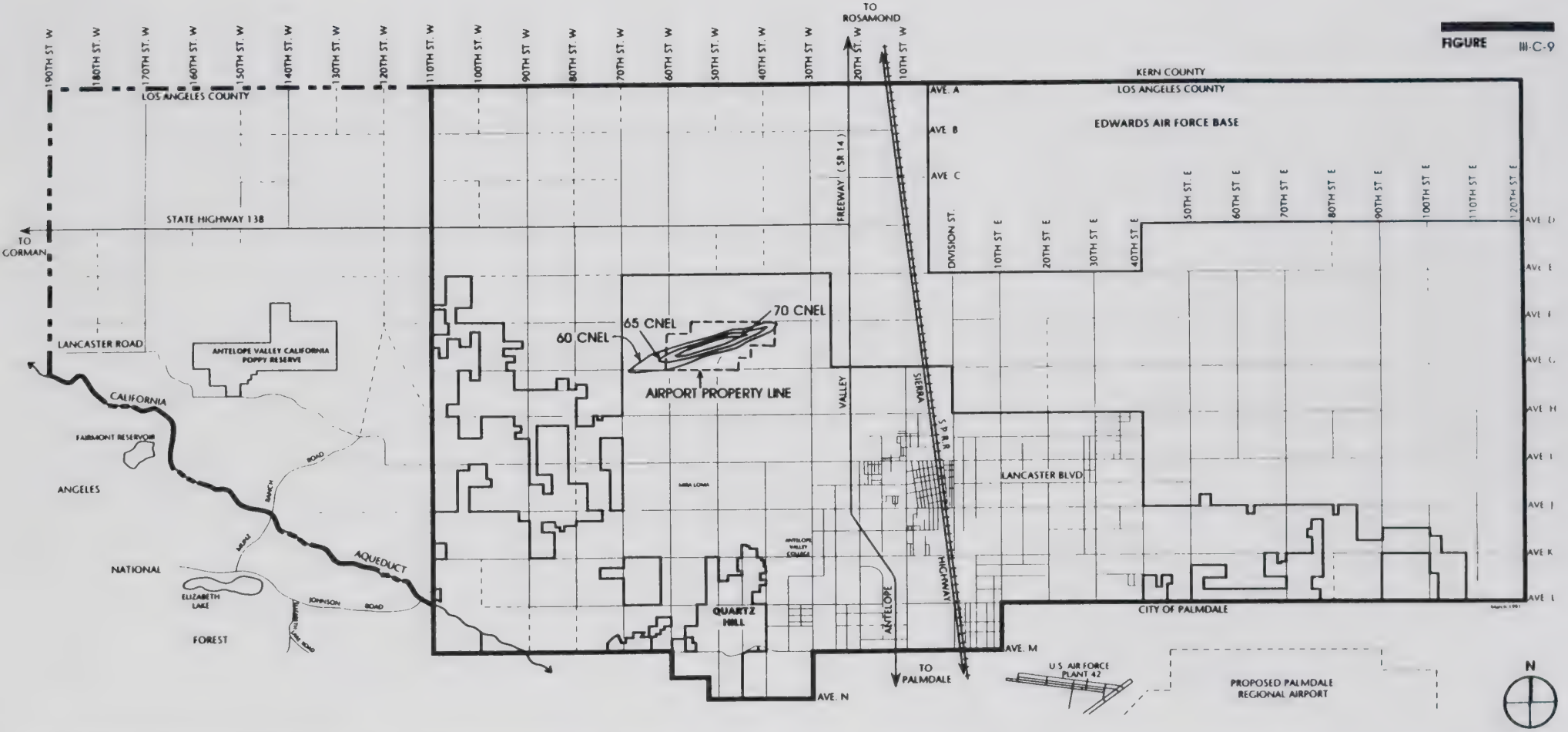
(b) Air Force Plant 42

Aircraft noise contours for the Air Force Plant 42, located in Palmdale, are shown in Figure III-C-11. These contours are significantly smaller (closer to Plant 42) than the previous contours shown in the 1977 Palmdale General Plan and the 1980 Lancaster General Plan. The main reasons for these changes seem to be the type of aircraft presently used, modifications in their historical flight patterns, and level and frequency of flights over populated areas. These new contours were provided by the Department of the Air Force as part of their Air Installation Compatible Use Zone (AICUZ) Study completed in 1990. This study was reviewed at various stages by representatives from the Air Force (in addition to Plant 42 personnel), the cities of Lancaster and Palmdale, the County of Los Angeles, and the Los Angeles City Department of Airports. The Lancaster Planning Advisory Committee (PAC) also reviewed this document, although approval of the AICUZ study does not require PAC approval. There is considerable public controversy at present over the location of the 65 CNEL contours for Plant 42, and what their implications will be for land uses south of Avenue K in Lancaster.

The existing noise contours for the Palmdale Regional Airport are within those of Plant 42. This is because these two facilities already share the same runways, and the Palmdale airport also has significantly fewer flights than Plant 42. However, if at some point this airport were to become an international facility, it is possible that the 65 CNEL contour would extend some distance off of the airport property itself. Although much of this additional noise would only affect the City of Palmdale, the land uses south of Avenue K within the Lancaster study area could eventually be adversely affected by expansion of the Palmdale Airport, especially if moderate to high intensity uses (including residential) were allowed in this area (Cafiero 1990).

The Plant 42 Joint Land Use Committee recommended the identification of the overflight area and the restriction of urban residential land uses within this area. Their rationale is that, although the area is not within the 65 CNEL boundary, there are peak noise levels that exceed 65 CNEL. In addition, this area statistically has the next most likely crash potential after Accident Potential Zones (APZ).

FIGURE III-C-9



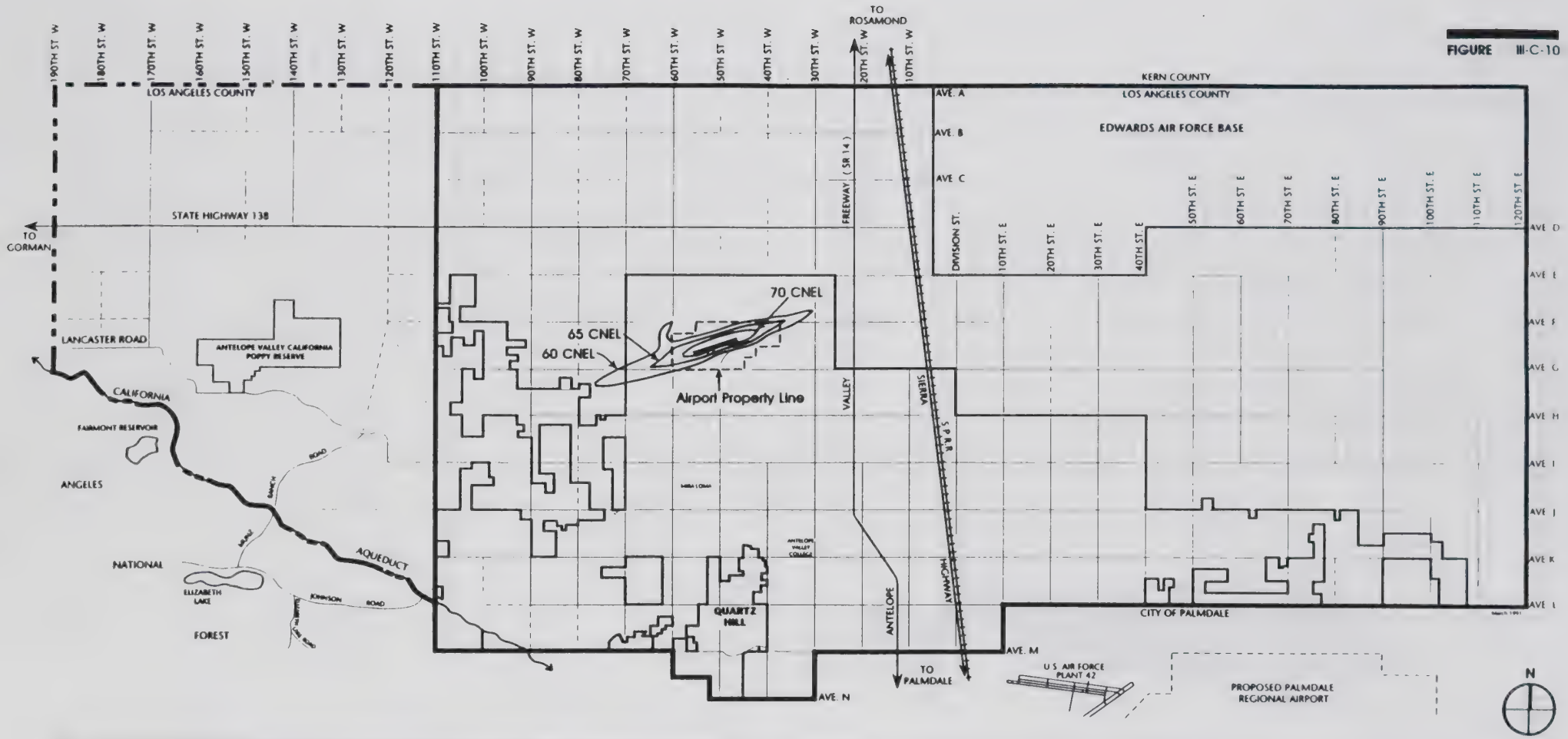
FOX FIELD NOISE CONTOURS (1983)

PLANNING NETWORK

CITY OF LANCASTER
GENERAL PLAN

Source: Endo Engineering, 1990.

FIGURE III-C-10



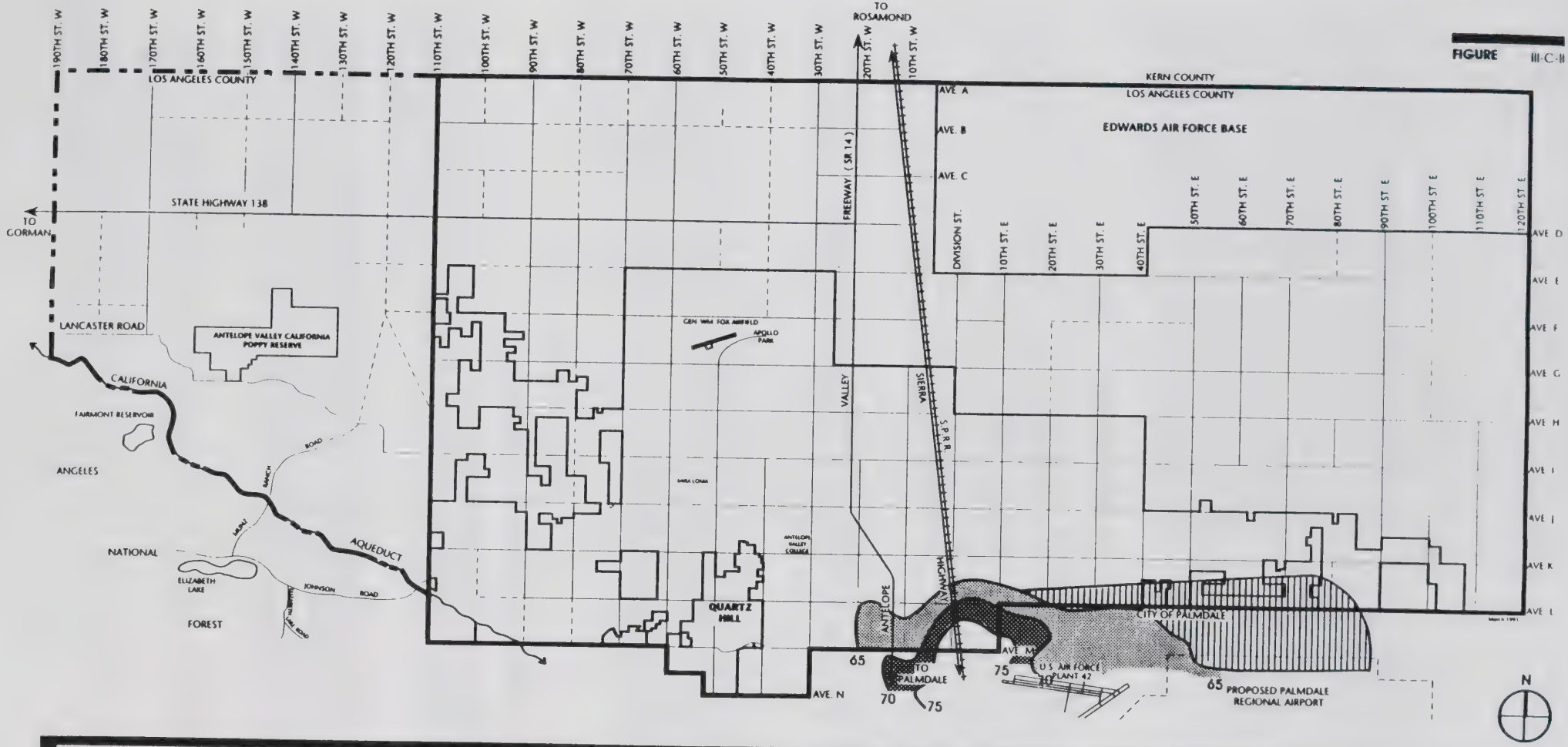
Source: Endo Engineering, 1990

PLANNING NETWORK

FOX FIELD NOISE CONTOURS (2003)

CITY OF LANCASTER
GENERAL PLAN

FIGURE III-C-II



PLANNING NETWORK

PLANT 42 CNEL AREAS

- 65-70 CNEL
- 70-75 CNEL
- PLANT 42 OVERFLIGHT ZONE

SOURCES:
1) General William J. Fox Airfield Master Plan,1983.
2) Preliminary Data on Edwards A.F.B. JLUS Study.
3) Plant 42 Air Installation Compatible Use Zones (AICUZ) Study, 1990.

PLANT 42 NOISE CONTOURS

CITY OF LANCASTER
GENERAL PLAN

(c) Edwards Air Force Base

Because of the arrangement of its Flight Test Range and the flight patterns of aircraft that utilize the facility, the 65 CNEL noise contour for Edwards Air Force Base does not extend off the base property. Therefore, this base is not required to provide an Air Installation Compatible Use Zone (AICUZ) Study. However, the base has tentatively designated a Joint Land Use Study (JLUS) safety corridor approximately four miles in width, which extends west of its western boundary along Avenue A. The lower half of this corridor, or the two miles within Avenue A to Avenue C, are within the City of Lancaster's Sphere of Influence (see the Physical Development Chapter). It should be noted that although the width of this zone is intended to encompass all potential flights through this corridor, it is not based on actual measured or predicted noise exposure levels at ground level (Johnstone 1990).

(d) Mira Loma Detention Facility

A helipad currently exists at the Mira Loma Detention Facility that is used once daily during the daylight hours.[1] Under emergency circumstances, the pad could be used in the evening to bring in back-up deputies. Current plans include the expansion of this pad for use by the Los Angeles County Aerobureau. The expanded helipad would house one helicopter for use by the Antelope Valley Patrol that files during the daylight hours and returns once for refueling.[2] This helicopter typically flies five days per week between the hours of 9:00 AM and 4:30 PM.

The detention facility also contains an outdoor shooting range that has been closed since 1988. There are currently no plans to reopen the shooting range.

(e) Other Air Facilities

A helipad is located on the Antelope Valley Hospital roof. This pad is used on an intermittent basis for emergency transport of patients. There is currently a helipad under construction at the Los Angeles County Sheriffs Station on 10th Street West and Avenue J. This will be a FAA approved landing site for law enforcement and any public service helicopters that require emergency assistance. According to the Los Angeles County Aerobureau, flights will most likely take place during daytime hours.

(2) Motor Vehicle Noise

(a) Current Motor Vehicle Noise Levels

Noise from motor vehicles is generated by the engine vibrations, the interaction between the tires and the road, and the exhaust system. Reducing the speed of motor vehicles reduces the noise exposure of listeners inside the vehicle and those adjacent to the roadway.

The Highway Traffic Noise Prediction Model developed by the Federal Highway Administration (RD-77-108) and currently being applied throughout the nation was used to evaluate current noise conditions in the City of Lancaster. This model accepts various parameters, including the traffic volume, vehicle mix and speed, and roadway geometry, in computing equivalent noise levels during

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1 Source: Operations Lieutenant Corrington, Mira Loma Detention Facility; April 1990.

2 Source: Flight Operations Lieutenant DiGiovanna, Los Angeles County Aerobureau; April 1990

typical daytime, evening, and nighttime hours. The resultant hourly noise levels are weighted, summed over 24 hours, and output as the CNEL value. Various CNEL contours are subsequently located through a series of computerized iterations designed to isolate the 60, 65, and 70 CNEL contour locations for planning purposes.

Table III-C-8 provides the current noise levels adjacent to roadways within the City of Lancaster. Roadway volumes and lane geometrics were taken from the DKS Associates "City of Lancaster Traffic Model." Noise levels are provided at 100 feet from the centerline of surface streets and 150 feet from the Antelope Valley Freeway centerline to allow the CNEL at the nearest sensitive receptor to be readily determined. The assumptions utilized for noise modeling purposes are provided at the end of the Noise Section.

As shown in Table III-C-8, the existing noise levels adjacent to City roadways range from a low of 44.2 CNEL along 40th Street East to a high of 71.1 CNEL along the Antelope Valley Freeway. Existing noise levels may be considered higher than those predicted under future conditions, primarily as a result of higher average vehicle speeds along rural roadways. As roadways approach their capacity under future conditions, more congestion will naturally occur and the average vehicle speeds will be decreased.

Sensitive receptors including schools, libraries, hospitals, and nursing homes are unacceptable in exterior environments which exceed 70 CNEL as shown in Figure III-C-12. Single and multi-family residences are unacceptable in exterior environments in excess of 65 CNEL. While exterior noise levels near 70 CNEL are not necessarily desirable exposures for sensitive receptors, the 70 CNEL maximum criteria developed by State Office of Noise Control serves as a general guideline for identifying community noise problems.

Under existing conditions, very few areas within the City experience ambient noise levels in excess of 70 CNEL. From the noise levels provided in Table III-C-8, it can be seen that the 70 dBA contour falls within the right-of-way along ninety-one of the one hundred and six roadway links analyzed. Therefore, the remaining fifteen roadway links may currently generate unacceptable noise levels at adjacent sensitive receptor locations. Many of the City's downtown areas adjacent to master planned roadway and freeway rights-of-way exceed 65 CNEL. Single family and multi-family residences located within this area may experience unacceptable noise levels.

Office buildings, retail commercial areas, and industrial facilities are considered normally unacceptable in exterior noise environments which exceed 75 CNEL. From the noise contours provided in Table III-C-8, it is unlikely that any areas of the City of Lancaster experience noise levels above this level as a result of motor vehicle noise.

(b) Future Roadway Noise Levels

Ultimate noise contours can be used for general planning purposes and refined on a site-specific basis when detailed acoustic reports are prepared for new developments. Until that time, Figures III-C-13 and III-C-17 can be used as a planning guide to determine potential "worst case" noise levels. The setbacks required to insure an acceptable noise environment for various land uses can be determined from the contour locations provided.

Figures III-C-12, III-C-13, and III-C-14 provide design noise levels adjacent to typical divided major arterials with 8, 6, and 4 lanes, respectively. Figures III-C-15 and III-C-16 provide design noise levels adjacent to typical undivided minor roadways with 4 and 2 lanes, respectively. The nomographs assume the ultimate daily design capacity for each roadway type, as well as typical design speed and a 2.58 percent truck mix. They can be used to determine the distance to the 60 dBA, 65 dBA, 70 dBA, and 75 dBA CNEL contours outside of the roadway rights-of-way, assuming flat terrain with no intervening barriers or buildings.

(3) Railroad Noise

The Mojave Mainline of the Southern Pacific Transportation Company bisects the City of Lancaster from north to south, and runs generally parallel to Sierra Highway and the Antelope Valley Freeway. This line runs between Mojave and Palmdale, where it divides for destinations in San Bernardino and Los Angeles.

Primary uses for the Mojave Mainline include the transportation of lumber from Oregon into the Los Angeles area and oil from the Port of Los Angeles to Bakersfield. Currently, there are approximately 15 one-way trips daily. Growth in rail traffic is expected to occur as market demand increases, especially in the areas of lumber and oil. However, the Southern Pacific Railroad was unable to provide definitive traffic projections.

One spur line exists in the City of Lancaster to the Terry Lumber Company yard, but the number of spur lines is expected to increase in the near future. This increase would result from expansion of the City's industrial base; however, the number of new rail spurs and their location cannot be predicted at this time.

Only freight trains utilize the Mojave Mainline, running at any time of the day or night as necessitated by market demand. These freight trains travel at a speed of up to 60 mph, as the Lancaster area is relatively flat.

Noise exposure contours along railway tracks are determined from the number and type of trains using the line, the magnitude and duration of each train pass, and the time of day when the train passes. Using the procedures developed by Wyle Laboratories, an analysis of the train operations was performed to determine existing noise levels.[1] Since the Southern Pacific Transportation Company has no projections for future operations, the existing conditions are assumed to represent future conditions as well. As the Lancaster area develops, train traffic is expected to increase, and, at the same time, average train speeds will decrease. Increases in the number of local rail spurs is not expected to significantly increase noise problems due to the slow speed used on the spurs.

Noise contours generated by the rail traffic are illustrated in Figure III-C-17. At 200 feet from the railway centerline, the noise level was determined to be 71.4 CNEL. The noise level at 400, 800, and 1,000 feet from the tracks is projected to be 65.8, 59.8, and 58.0 CNEL, respectively.

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1 Wyle Laboratories, "Assessment of Noise Environments Around Railroad Operations;" July 1973.

Table III-C-8
Current Exterior Noise Exposure (1990)

Master Planned Roadway	A.D.T.[1] (Veh/Day)	CNEL @ 100 Feet [2]	Distance to Contours (Ft.) [3] 70 dBA	65 dBA	60 dBA
Avenue D	2,800	58.6	R/W	R/W	81
West of 80th Street West	3,500	59.6	R/W	R/W	94
West of Sierra Highway					
Avenue E					
West of Sierra Highway	300	48.9	R/W	R/W	R/W
West of 50th Street East	2,700	58.4	R/W	R/W	78
East of 50th Street East	2,200	57.6	R/W	R/W	69
Avenue G					
West of Antelope Valley Freeway	400	50.2	R/W	R/W	R/W
West of 10th Street West	400	50.2	R/W	R/W	R/W
West of Division Street	2,000	57.2	R/W	R/W	65
West of 90th Street East	1,000	54.1	R/W	R/W	R/W
Avenue H					
West of 30th Street West	1,000	54.1	R/W	R/W	R/W
West of Sierra Highway	3,000	57.9	R/W	R/W	73
East of Division Street	700	52.6	R/W	R/W	R/W
Avenue I					
West of 50th Street West	1,900	56.9	R/W	R/W	62
West of Antelope Valley Freeway	9,400	63.0	R/W	75	156
West of Sierra Highway	28,000	65.3	53	104	220
West of 20th Street East	19,000	66.1	58	117	249
West of 30th Street East	11,000	63.6	R/W	81	172
West of 40th Street East	5,600	61.7	R/W	62	129
West of 120th Street East	4,500	60.7	R/W	52	111
Lancaster Boulevard					
West of 20th Street West	3,700	57.8	R/W	R/W	73
West of Division Street	13,000	62.0	R/W	66	134
West of 5th Street East	11,000	62.4	R/W	67	144
West of 20th Street East	3,700	58.8	R/W	R/W	83
West of 50th Street East	1,500	55.9	R/W	R/W	54
Avenue J					
West of 90th Street West	500	51.1	R/W	R/W	R/W
West of 60th Street West	1,200	54.9	R/W	R/W	46
West of 40th Street West	3,900	60.1	R/W	R/W	102
West of Antelope Valley Freeway	16,000	64.0	R/W	86	185
West of 20th Street West	26,000	66.3	60	121	256
West of Division Street	31,000	65.8	56	112	238
West of 15th Street East	24,000	65.9	57	114	241
West of 20th Street East	11,000	63.7	R/W	83	173
West of 120th Street East	5,300	61.4	R/W	58	124
Avenue K					
West of 50th Street West	3,400	60.1	R/W	R/W	102
West of 30th Street West	9,000	63.5	R/W	81	168
West of Division Street	35,000	68.3	79	163	348
West of 20th Street East	20,000	66.9	65	132	281
West of 50th Street East	6,000	62.5	R/W	68	147
West of 90th Street East	2,400	58.5	R/W	R/W	80
East of 90th Street East	1,000	54.8	R/W	R/W	R/W
Avenue L					
West of 40th Street West	9,000	63.3	R/W	77	166
West of 10th Street West	16,000	65.8	R/W	113	243
West of Sierra Highway	8,000	62.8	R/W	71	154
West of 10th Street East	500	49.6	R/W	R/W	R/W
West of 60th Street East	150	46.5	R/W	R/W	R/W

Table III-C-8 (Continued)
Current Exterior Noise Exposure (1990)

Master Planned Roadway	A.D.T.[1] (Veh/Day)	CNEL @ 100 Feet[2]	Distance to Contours (Ft.)[3] 70 dBA	65 dBA	60 dBA
Avenue M	2,300	55.0	R/W	R/W	R/W
West of 50th Street West	9,000	63.3	R/W	77	166
West of Antelope Valley Freeway	13,000	62.7	R/W	71	150
West of 10th Street East					
90th Street West					
North of Avenue A	1,400	55.6	R/W	R/W	51
70th Street West					
North of Avenue J	400	50.2	R/W	R/W	R/W
North of Avenue L	500	51.1	R/W	R/W	R/W
North of Avenue M	500	51.1	R/W	R/W	R/W
60th Street West					
North of Avenue L	1,400	55.6	R/W	R/W	51
North of Avenue M	4,800	60.9	R/W	54	115
50th Street West					
North of Avenue J	1,800	56.7	R/W	R/W	R/W
North of Avenue L	6,000	61.9	R/W	62	134
North of Avenue M	9,000	63.7	R/W	82	176
40th Street West					
North of Avenue K	2,300	57.7	R/W	R/W	70
30th Street West					
North of Avenue H	350	49.6	R/W	R/W	R/W
North of Avenue J	7,000	61.7	R/W	63	128
North of Avenue K	13,000	64.4	R/W	92	192
North of Avenue L	15,000	65.0	51	100	211
North of Avenue M	9,000	62.6	R/W	69	149
20th Street West					
North of Lancaster Boulevard	7,000	60.6	R/W	55	109
North of Avenue J	11,000	62.5	R/W	70	144
North of Avenue K	27,000	66.4	61	123	260
North of Avenue L	10,000	63.3	R/W	79	163
North of Avenue M	4,300	60.5	R/W	R/W	108
10th Street West					
North of Avenue H	900	53.7	R/W	R/W	R/W
North of Avenue I	7,000	60.6	R/W	55	109
North of Avenue J	23,000	64.6	51	95	196
North of Avenue M	22,000	66.5	59	126	271
Sierra Highway					
North of Avenue I	7,000	61.3	R/W	60	121
North of Avenue J	22,000	64.9	R/W	99	209
North of Avenue K	24,000	65.4	54	106	224
North of Avenue M	28,000	69.3	90	191	410
Division Street					
North of Avenue G	1,000	54.1	R/W	R/W	R/W
North of Avenue H	4,000	56.7	R/W	R/W	60
North of Lancaster Boulevard	9,000	60.2	R/W	R/W	103
North of Avenue J	12,000	62.9	R/W	74	153
North of Avenue L	6,000	59.9	R/W	R/W	99
10th Street East					
North of Avenue H	1,000	54.1	R/W	R/W	R/W
North of Avenue I	3,100	59.1	R/W	R/W	87
North of Lancaster Boulevard	8,000	61.0	R/W	54	117
North of Avenue J	10,000	62.1	R/W	67	136
North of Avenue K	13,000	63.3	R/W	79	163
North of Avenue M	8,000	63.2	R/W	76	163

Table III-C-8 (Continued)
Current Exterior Noise Exposure (1990)

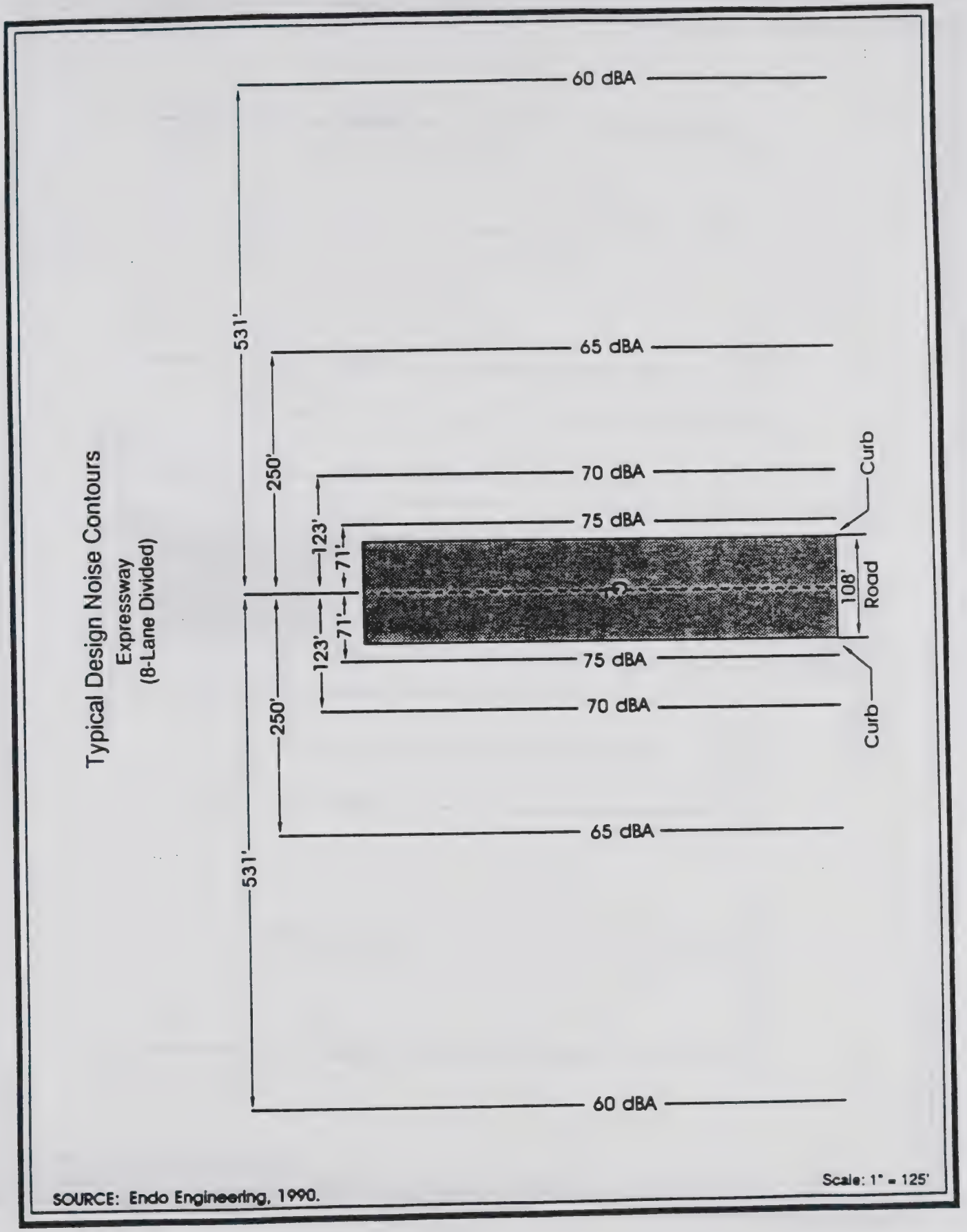
Master Planned Roadway	A.D.T.[1] (Veh/Day)	CNEL@ 100 Feet[2]	Distance to Contours (Ft.)[3] 70 dBA	65 dBA	60 dBA
20th Street East	300	47.9	R/W	R/W	R/W
North of Avenue I	4,300	59.4	R/W	R/W	91
North of Avenue J	7,000	61.5	R/W	R/W	126
North of Avenue K	2,600	58.3	R/W	R/W	77
North of Avenue L					
30th Street East					
North of Avenue H	900	53.7	R/W	R/W	R/W
North of Avenue L	2,700	58.4	R/W	R/W	78
40th Street East					
North of Avenue I	100	44.2	R/W	R/W	R/W
North of Avenue L	700	52.6	R/W	R/W	R/W
50th Street East					
North of Avenue I	800	53.2	R/W	R/W	R/W
North of Avenue K	2,500	58.1	R/W	R/W	75
North of Avenue L	3,600	59.7	R/W	R/W	96
70th Street East					
North of Avenue J	400	50.2	R/W	R/W	R/W
North of Avenue L	200	47.2	R/W	R/W	R/W
90th Street East					
North of Avenue L	3,900	60.1	R/W	R/W	102
Antelope Valley Freeway					
North of Avenue D	18,000	67.8	R/W	219	455
North of Avenue F	20,000	68.3	R/W	235	491
North of Avenue H	24,000	69.1	R/W	263	554
North of Avenue I	26,000	69.4	R/W	275	580
North of Avenue J	28,000	69.7	R/W	287	607
North of Avenue L	38,000	70.6	162	328	696
North of Avenue M	42,000	71.1	173	353	751

Source: Endo Engineering, 1990.

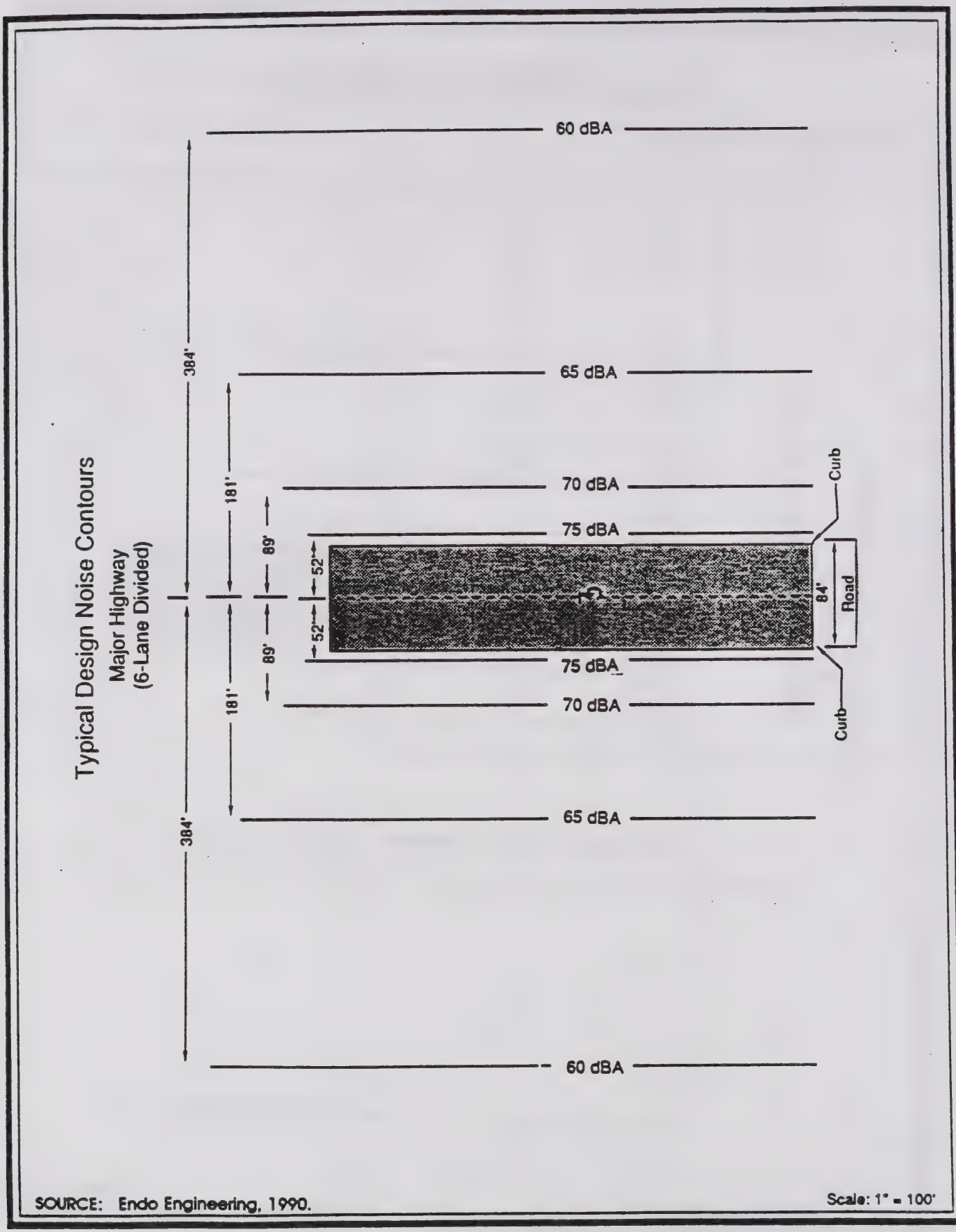
1 A.D.T. means average daily two-way traffic volume.

2 CNEL values are given 150 feet from the Antelope Valley Freeway centerline and 100 feet from all other roadway centerlines (see the Appendix for assumptions).

3 All distances are measured from the centerline. R/W means the contour falls within the right-of-way.

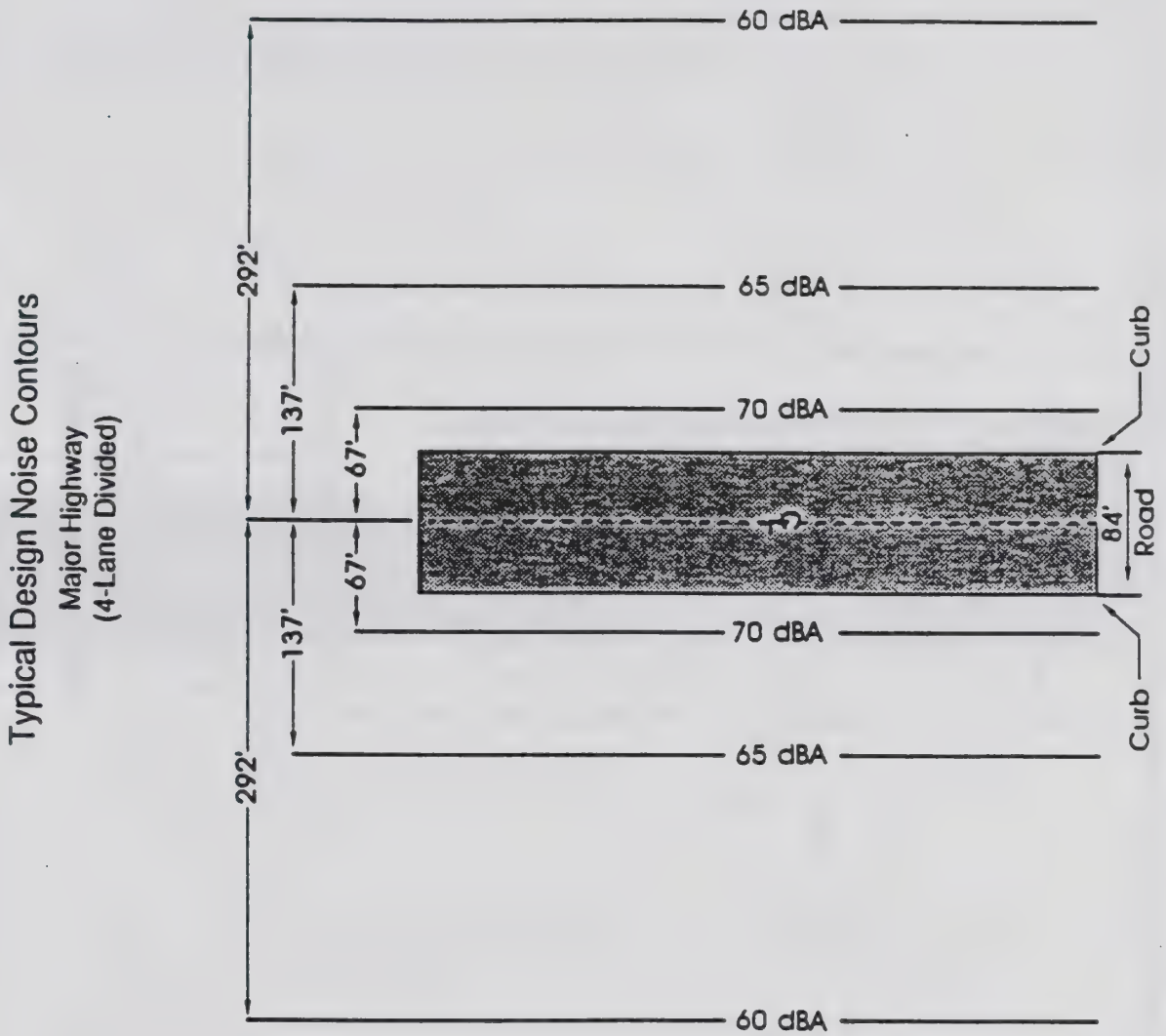


SOURCE: Endo Engineering, 1990.



SOURCE: Endo Engineering, 1990.

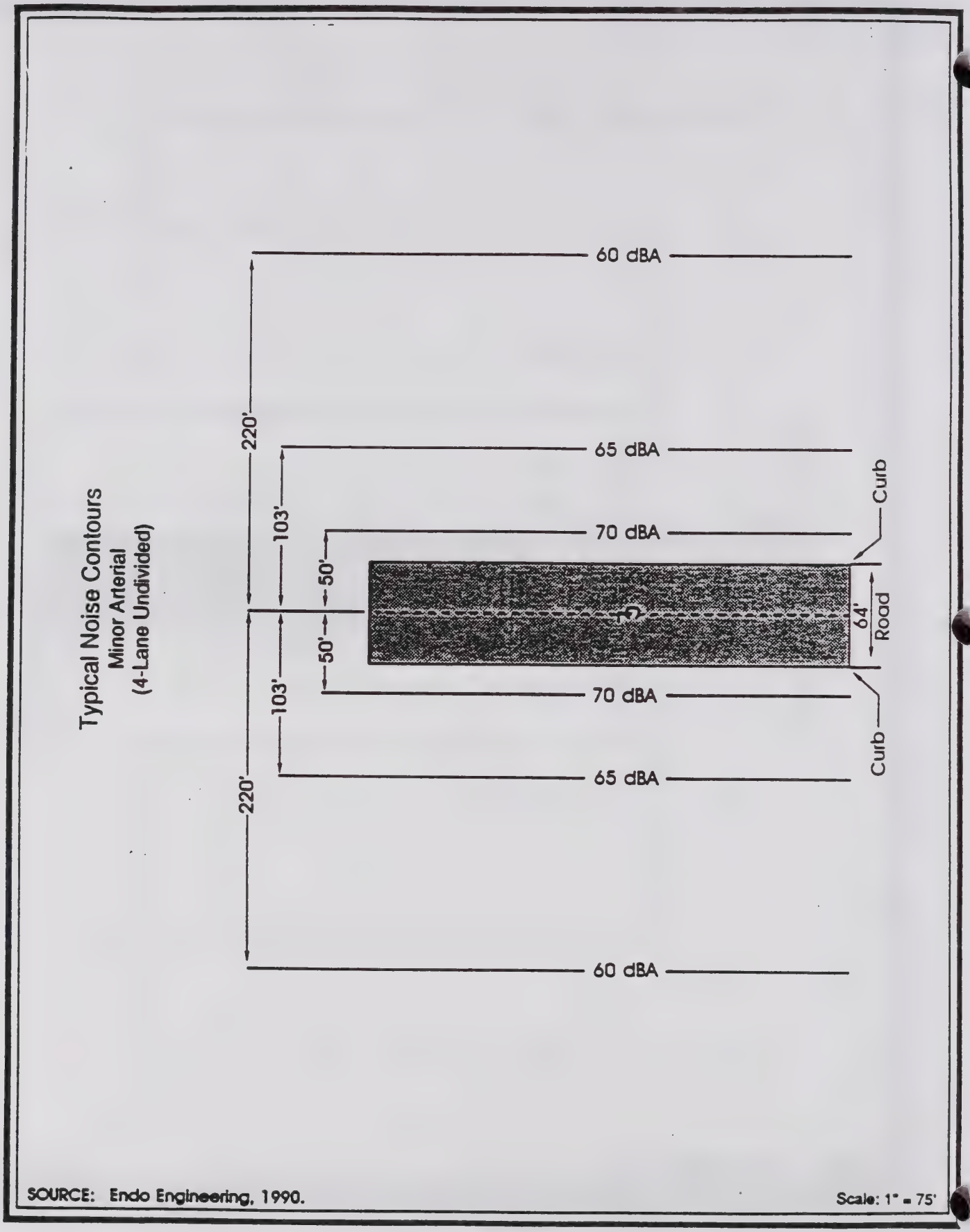
Scale: 1" = 100'

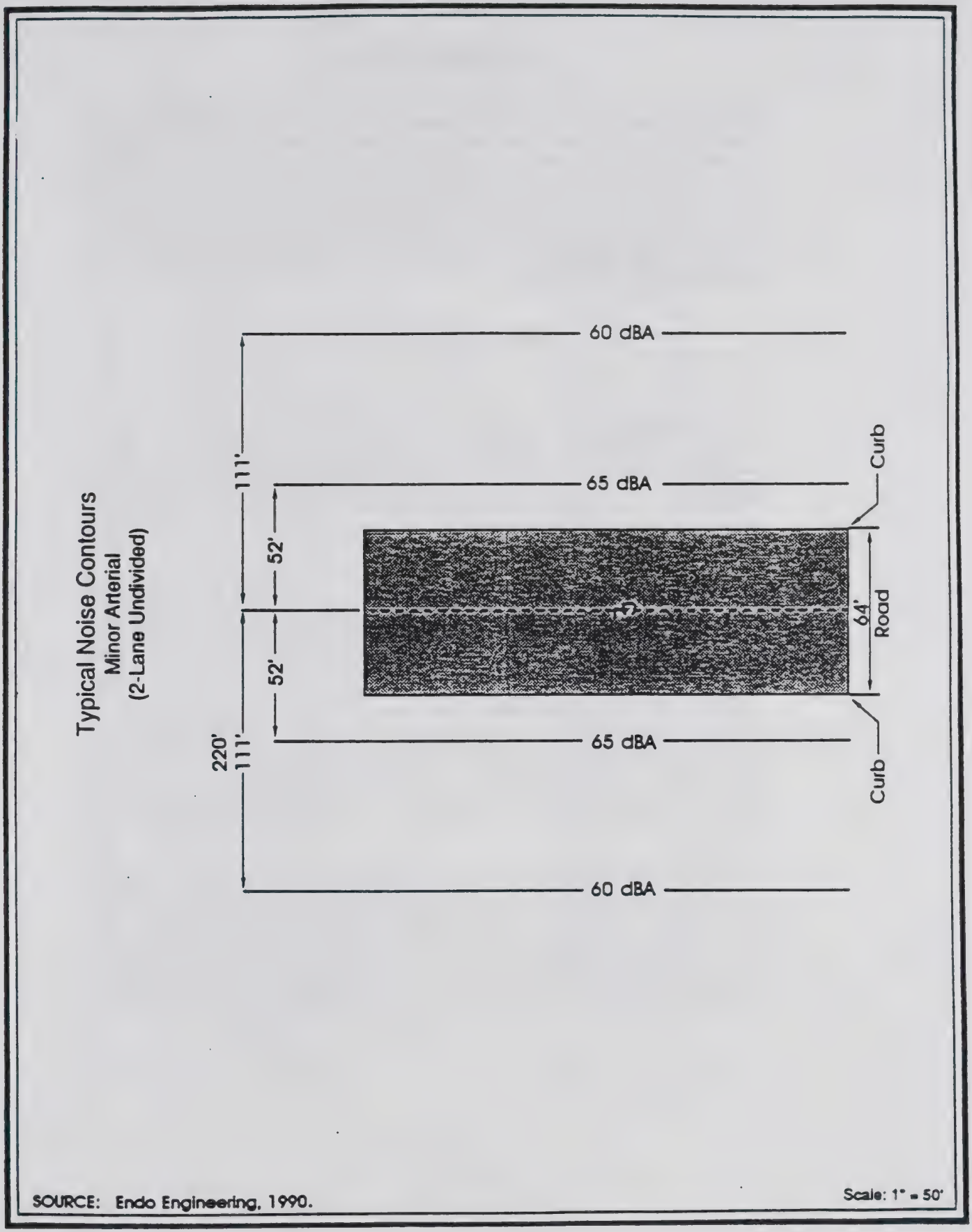


Typical Design Noise Contours
Major Highway
(4-Lane Divided)

SOURCE: Endo Engineering, 1990.

Scale: 1" = 100'


Typical Noise Contours
Minor Arterial
(4-Lane Undivided)
60 dBA
65 dBA
70 dBA
70 dBA
65 dBA
60 dBA
220'
103'
50'
50'
103'
220'
Curb
64'
Road
Curb
SOURCE: Endo Engineering, 1990.
Scale: 1" = 75'



SOURCE: Endo Engineering, 1990.

Scale: 1" = 50'

(4) Industrial Noise

Industrial noise sources are located in industrial zoned properties throughout the City. In general, industrial noise sources are not creating large-scale problems. There are, however, some localized noise problems related to industrial sources. A small number of industrial uses are located along the east Avenue I corridor which conduct outdoor activities adjacent to residential uses. These uses create high single event noise levels which may be disturbing to adjacent residential development. In addition, several residential uses can be found within the industrial areas located east of the downtown area, east of the Southern Pacific rail line. These residential uses are also subject to high single event noise levels from nearby industrial sources.

e. Ambient Noise Measurements

(1) Sensitive Noise Receptors

Land uses deemed noise sensitive by the State of California include: schools, hospitals, rest homes, long-term care and mental care facilities. Some jurisdictions also elect to consider day care centers, single family dwellings, mobile home parks, churches, libraries, and recreation areas sensitive to noise. The location of noise sensitive receptors are listed in Table III-C-9 and illustrated in Figure III-C-18. Moderately sensitive land uses typically include: multi-family dwellings, hotels, motels, dormitories, and out-patient clinics.

Relatively noise insensitive land uses are business, commercial, and professional developments. Insensitive noise receptors include industrial, manufacturing, utilities, agriculture, natural open space, undeveloped land, parking lots, motorcycle parks, rifle ranges, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Current land uses located within the City of Lancaster that are sensitive to intrusive noise include residential uses and schools. While hospitals are generally considered to be noise-sensitive, noise problems are not typically encountered. Hospital buildings are generally constructed to insulate interior areas from noise and to not require that windows be opened at any time. The general locations and extent of residential land uses can be found in Physical Development.

Noise levels were measured adjacent to sensitive receptors at six locations throughout the City of Lancaster as illustrated in Figure III-C-19. These locations were selected as a representative sample of sensitive receptors in the more urbanized portions of the City. The noise measurements described in Table III-C-10 were taken adjacent to major roadways in the City to determine peak noise levels at "worst-case" sensitive receptor locations. The sensitive receptor locations monitored included: a single-family residence, a convalescent care facility, a hospital, a place of worship, and two educational facilities.

Table III-C-9
Sensitive Noise Receptors

	Facilities[1]	Location
	Schools/Preschools	
(1)	A.V. Adventist School	45045 N. Date
(2)	A.V. Christian School	44600 N. 20th W
(3)	Alpha-Omega Nursery	827 E. Ave. J-10
(4)	Antelope Valley High School	44900 Division
(5)	Assistance League Nursery	44539 N. Fern
(6)	Bethel Christian Academy	3100 W. Ave. K
(7)	Children's Corner	345 W. Lancaster Blvd.
(8)	Del Sur Elementary	9023 W. Avenue H
(9)	Desert Christian School	44648 15th Street West
(10)	Desert View Elementary School	1555 W. Ave. H-10
(11)	Domenico Pre-School	45109 N. Date Ave.
(12)	Currently Eastside Elementary	6742 E. Avenue H
(13)	El Dorado Elementary School	361 E. Pondera St.
(14)	El Dorado Preschool & Wee Folks	44501 N. 5th Street East
(15)	Grace Lutheran School	856 W. Newgrove
(16)	Headstart	1734 E. Ave. H-8
(17)	Hughes Elizabeth Lakes Elementary	16633 Elizabeth Lake Road
(18)	Jane Reynolds Park Preschool & Play Bridge	716 W. Oldfield
(19)	Joe Walker Middle School	5632 W. Avenue L-8
(20)	Joshua Elementary School	43926 N. 2nd St. East
(21)	Kiddie Kollege Pre-School	43926 N. 2nd St. J-8
(22)	Kinder Care	K & 22nd West
(23)	Kinder Care	44400 Foxton
(24)	Lancaster Christian School	44339 N. Beach Ave.
(25)	Lancaster Methodist Pre-School	918 W. Ave. J
(26)	Lancaster Parent Co-Op	506 West Ave. K
(27)	Lilliput Nursery School	646 E. Ave. K
(28)	Lincoln Elementary	1331 E. Avenue J-8
(29)	Linda Verde Elementary School	44924 N. 5th St. East
(30)	Mariposa Elementary School	737 W. Ave. H-6
(31)	Mariposa Park Preschool & Wee Folks	45755 N. Fig Avenue
(32)	Monte Vista Elementary School	1235 W. Kettering
(33)	Montessori Desert Academy	44503 N. Fern
(34)	Nancy Cory Elementary	3540 W. Avenue K-4
(35)	New Vista Elementary	831 E. Avenue K-2
(36)	Park View Elementary	808 W. Avenue J
(37)	Pinecrest Elementary School	2110 W. Ave. K
(38)	Piute Elementary	425 E. Avenue H-11
(39)	Quartz Hill High School	6040 W. Avenue L
(40)	Quartz Hill Elementary	41820 50th Street West

Table III-C-9 (Continued)
Sensitive Noise Receptors

	Facilities	Location
(41)	Sacred Heart School	45002 Date Ave.
(42)	Sierra Elementary School	747 W. Ave. J-12
(43)	Springs of Life Christian School	42640 N. 10th St. West
(44)	Strawberry Patch Pre-School	44835 N. Beach
(45)	Sunnydale School	1233 West Ave. J-8
(46)	Sunshine Factory Preschool	44514 20th St. West
(47)	Tierra Bonita	37th Street East and Ave. J
(48)	Valley View Elementary	3310 W. Avenue L-8
(49)	Wonder Years Preschool	45108 N. Beach
	Hospitals/Convalescent Facilities	
(50)	Antelope Valley Behavioral Activity Center	1734 E. Ave., H-8
(51)	Antelope Valley Convalescent Hospital	44445 N. 15th St. West
(52)	Antelope Valley Hospital Medical Center	1600 West Ave. J
(53)	Antelope Valley Retirement Manor Inc.	44523 N. 15th St. West
(54)	Desert Haven/Association of	
(55)	Retarded Citizens	43437 Copeland Cr.
(56)	Lancaster Community Hospital	43830 10th Street West
(57)	Lancaster Convalescent Hospital	1642 West Ave. J
(57)	Los Angeles County High Desert Hospital	44900 N. 60th Street West

[1] See Figure II-B-2 for locations

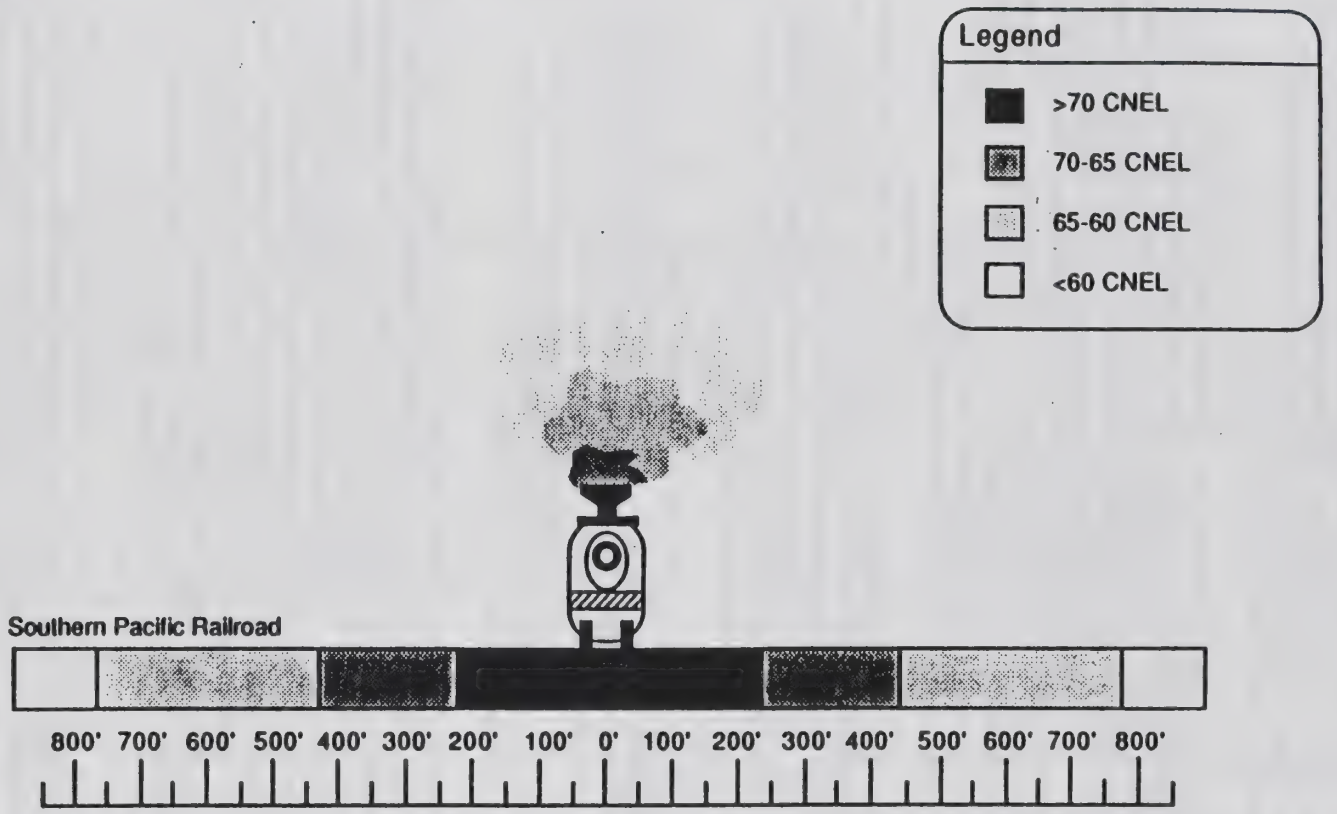
Table III-C-10
Existing Noise Exposure Levels
At Noise Sensitive Receptors

Distance to Centerline (ft.)	Sensitive Receptor Type	Leq[1] (dBA)
101	Elementary School	65.7
68	High School	68.3
53	Single-Family Residence	68.5
72	Church	67.5
84	Convalescent Hospital	69.4
265	Hospital	62.4

Source: Endo Engineering, 1990.

1 Each noise level is adjusted to reflect maximum Leq values based upon the peak hour traffic volume provided by DKS Associates compared to the traffic volume during the noise measurement period.

Railroad Noise Contours



SOURCE: Endo Engineering, 1990.

FIGURE III-C-17

Measurement site 1 was located at the Bethel Christian Academy, five feet from the eastern classrooms. Site 1 was more specifically located 100 feet south of the Avenue K centerline and 720 feet west of 30th Street West. An exterior playground, east of and adjacent to the classrooms, was located at the same distance from the Avenue K centerline. The noise level monitored at site 1, while school was in session, was 65.8 dBA. This noise level was adjusted to 65.7 dBA to reflect peak hour traffic volumes along Avenue K.

Measurement site 2 was located at the Antelope Valley High School, five feet west of the southern classroom building. Site 2 was 68 feet east of the Division Street centerline and 66 feet south of the Lancaster Boulevard centerline. Noise emanating from Lancaster Boulevard was minimal since the school is located at its eastern terminus and a drainage dip exists just west of the intersection, resulting in low vehicle speeds. The majority of the noise was generated by through traffic along Division Street. However, the intersection of Division Street and Lancaster Boulevard is controlled by a signal which disrupts the flow of traffic, causing vehicles to decelerate and accelerate as the signal cycles. The noise level monitored at site 2 during after-school hours was 68.3 dBA.

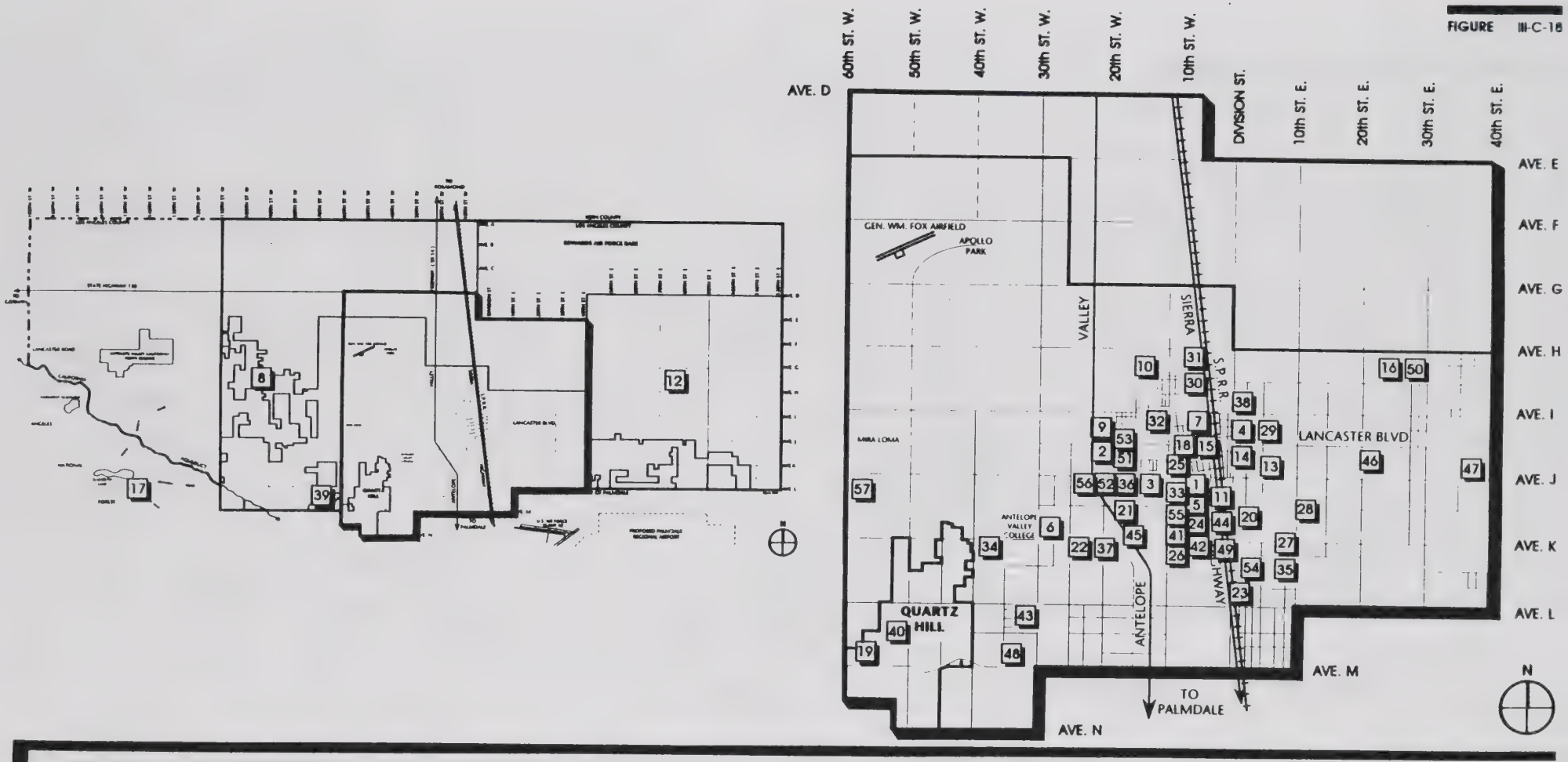
Measurement site 3 was located at a "worst-case" mid- block single-family detached residence on the west side of 10th Street West. Site 3 was 53 feet west of the 10th Street West centerline and 167 feet north of Avenue H-14. The residence faces 10th Street West but has rear vehicular access from a back alley. This site is similar to the residences along both sides of 10th Street West in the vicinity. The noise level monitored at site 3 was 68.5 dBA.

Measurement site 4 was at the Lancaster Baptist Church, located on the east side of 20th Street West. Site 4 was more specifically located 72 feet east of the 20th Street West centerline and 260 feet north of the Lancaster Boulevard centerline. The church is located in a primarily residential area, opposite multi-family dwellings. The multi-family units are located approximately the same distance from the 20th Street West centerline as the location monitored. The noise level monitored at site 4 was 67.5 dBA.

Measurement site 5 was located five feet from the Lancaster Convalescent Hospital. Site 5 was 84 feet north of the Avenue J centerline, 148 feet east of the Lorimer Avenue centerline, and approximately 5 feet above the roadway grade. The noise level measured at this facility represents the sound exposure in exterior areas during the evening peak hour. Since convalescent patients are typically confined to the facility, exterior noise may not be of concern. Interior noise at the convalescent facility is important and may be acceptable if building construction techniques include appropriate noise attenuation features. A survey of the facility indicated that patient rooms, along with administrative and office areas, were located near the roadway. The noise level monitored at site 5 was 69.4 dBA.

Measurement site 6 was located 60 feet west of the Lancaster Community Hospital and 265 feet east of the 10th Street West centerline, near the northern hospital building. A survey of the rooms closest to the roadway showed that the majority were utilized for equipment and supply storage, administrative offices, and examination rooms. Patient rooms were typically above ground level and/or set back from the roadway. The noise level monitored at site 6 was 62.4 dBA.

FIGURE III-C-18



PLANNING NETWORK

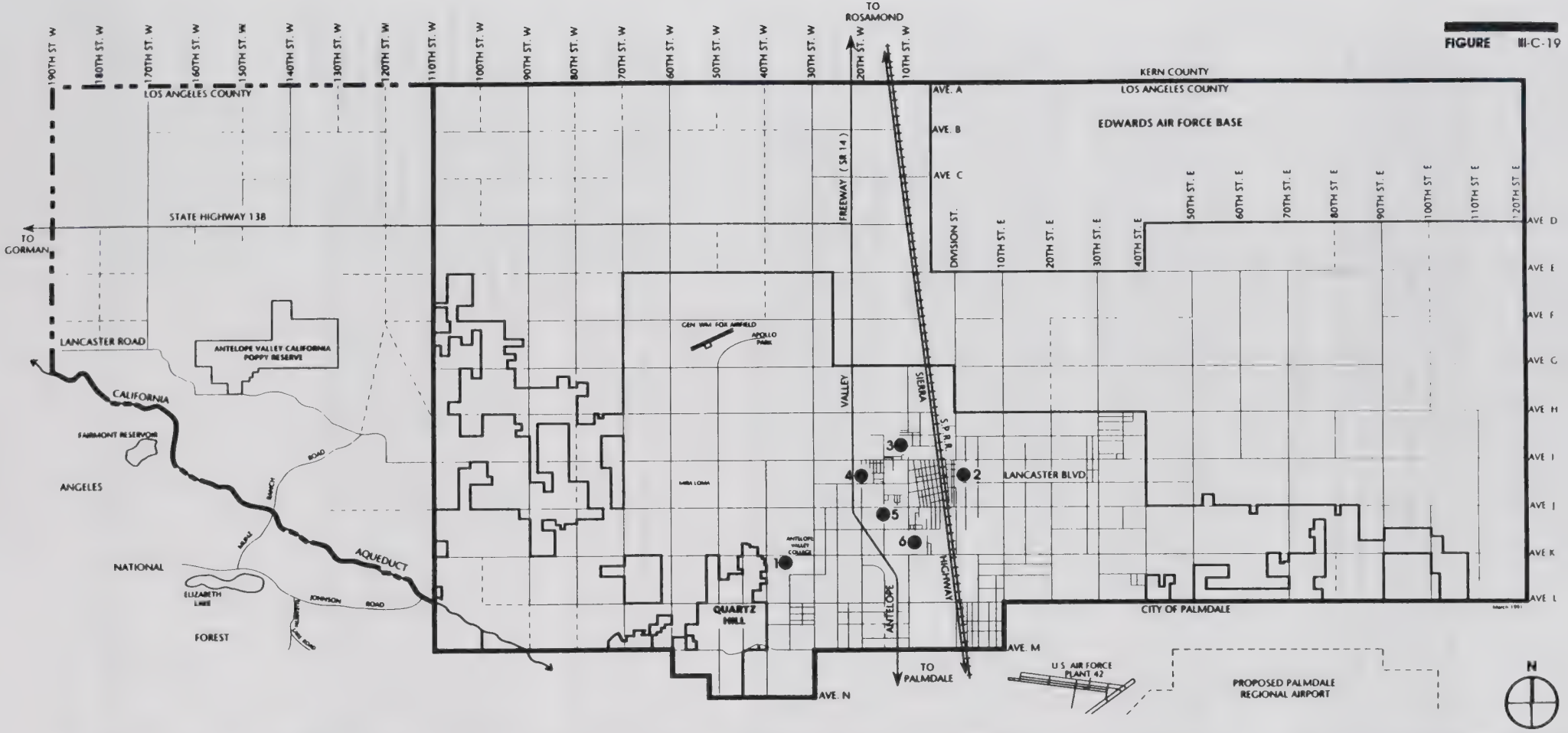
RECEPTOR IDENTIFICATION
Refer to Table III-C-9 for facility listing.

SOURCE: Planning Network, 1990.

SENSITIVE NOISE RECEPTORS

CITY OF LANCASTER
GENERAL PLAN

FIGURE III-C-19



NOISE MEASUREMENT LOCATIONS

PLANNING NETWORK

Noise Measurement Location

CITY OF LANCASTER
GENERAL PLAN

All of the noise measurements indicate peak hour noise levels below 70 CNEL. The 70 CNEL contour is "normally acceptable" for schools, libraries, churches, hospitals and nursing homes. The noise level at measurement site 3, the single-family residence along 10th Street West, exceeded the City's 65 CNEL residential noise standard. It is expected that other residences fronting roadways master planned as major highways may experience noise levels in excess of 65 CNEL.

f. Noise Attenuation Principles

(1) Noise Attenuation with Distance

In an area which is relatively flat and free of barriers, the noise level resulting from a single "point source" of noise drops by 6.0 decibels for each doubling of distance or 20 decibels for each factor of ten in distance. This applies to fixed noise sources such as industries, refrigeration/air conditioning units, and bells at schools. It also applies to individual mobile noise sources such as an airplane, motorboat, train or idling automobile.

For a "line source" of noise, such as a heavily traveled roadway, the noise level drops off by a nominal value of 3.0 decibels for each doubling of distance between the noise source and noise receiver. Environmental conditions such as the wind direction and speed, temperature gradients, the characteristics of the ground (hard or soft) and the air (relative humidity), and the presence of grass, shrubbery and trees combine to increase the actual attenuation achieved outside of laboratory conditions to 4.5 decibels per doubling of distance.

In its "Noise Assessment Guidelines," the Federal Department of Housing and Urban Development uses a 4.5 decibel drop for each doubling of distance in assessing roadway noise. Thus, a noise level of 74.5 decibels at 50 feet from the highway centerline would be attenuated naturally to 70.0 decibels at 100 feet, 65.5 decibels at 200 feet, 61.0 decibels at 400 feet and so forth. This 4.5 decibel reduction with doubling of distance was applied throughout the analyses in this report.

(2) General Methods to Reduce Noise Impacts

There are several basic techniques available to minimize the adverse effects of noise on sensitive noise receivers. Classical engineering principles suggest controlling the noise source whenever feasible and protecting the noise receptors when noise source control mechanisms have been pre-empted by State and Federal governments.

Those noise producers within local jurisdiction include: industrial processes, electrical substations, wastewater treatment facilities, transportation system locations, swimming pool/spa pump motors, air conditioning units, drive-through speakers, siren usage, and local government controlled or sanctioned activities (City vehicles, public works projects). Regulatory mechanisms available to control these noise sources include: (1) City Noise Ordinance, (2) the application of "conditions of approval" on new developments, (3) land use policy and approval practices as outlined in the General Plan, and (4) the provision of noise information in permit applications for swimming pools, spas, and air conditioning systems.

In the event that source control mechanisms have been employed and noise impacts persist or are projected to occur, additional techniques should be considered. Acoustic site planning, architectural design, acoustic construction techniques, and the erection of noise barriers are all effective methods for reducing noise impacts.

Acoustic site planning involves the careful arrangement of land uses, lots, and buildings to minimize intrusive noise levels. The placement of noise compatible land uses between the roadway and more sensitive uses is an effective planning technique. The use of buildings as noise barriers, and their orientation away from the source of noise, can shield sensitive activities, entrances, and common open space areas. Clustered and planned unit developments can maximize the amount of open space available for landscaped buffers next to heavily traveled roadways and, thereby, allow aesthetic residential lot setbacks in place of continuous noise barriers.

Acoustic architectural design involves the incorporation of noise reduction strategies in the design and lay-out of individual structures. Building heights, room arrangements, window size and placement, balcony and courtyard design, and the provision of air conditioning all play an important role in shielding noise sensitive activities from intrusive sound levels.

Acoustic construction is the treatment of various parts of a building to reduce interior noise levels. Acoustic wall design, doors, ceilings and floors, as well as dense building materials, the use of acoustic windows (double glazed, double paned, thick, non-openable, or small with air-tight seals), and the inclusion of maximum air spaces in attics and walls are all available options.

Noise barriers are relatively easy to design and inexpensive. Consequently, they are often used indiscriminately in place of the techniques discussed above, hence developments occur where each road is bordered by six foot block walls, behind which residences are "protected" from excessive noise levels. Ideally, noise barriers incorporate the placement of berms, walls, or a combination of the two in conjunction with appropriate landscaping to effect an aesthetically pleasing environment. Where space is available (clustered developments), a meandering earth berm is both effective and pleasing. Where space is restricted, a wall is effective. In either case, thick coniferous landscaping could be specified to reduce the visual impact of the barrier and retain the rural ambiance.

g. Temporal Traffic Distribution Assumed (Percent)

The following general assumptions were used in evaluating traffic concerns:

- Road Grade Assumptions -- level terrain and roadway.
- Roadway Width Assumed -- were taken from DKS Associates "City of Lancaster Traffic Model" and a field survey conducted by Endo Engineering.
- Speeds Assumed -- for a "worst case" analysis, the posted speed limits were assumed for the noise modeling wherever they were not available. Other speeds were provided by DKS Associated and the City of Lancaster.
- RD-77-108 Input Parameter -- see Table III-C-11.

h. Sound Level Meter

The sound level meter utilized to measure existing noise levels was a Model 800B Precision Sound Level Meter and Analyzer manufactured by Larson & Davis Laboratories. This meter meets ANSI and IEC Standards (ANSSI.4-1971 Type I precision) and was calibrated before field measurements were taken.

i. Procedure

One integrated noise measurement was taken at each location illustrated in Table III-C-12. Ten minute noise level recordings were used to represent the average noise level for the maximum 1-hour period. Any measurements made during off-peak traffic were adjusted to peak traffic as specified in the Caltrans Noise Manual.

Table III-C-11
RD-77-108 Noise Assumptions

Type of Vehicle	Day	Evening	Night
Automobile	74.41	12.38	9.21
Medium Truck	1.56	0.09	0.19
Heavy Truck	0.64	0.02	0.08

Source: Orange County EMA representing 31 arterial intersections throughout the County and assumed to be typical of southern California arterials.

Table III-C-12
Existing Conditions
Assumptions For FHWA RD-77-108 Noise Model

Roadway	Speed[1] (mph)	Half-Width[2] (feet)	Percent Truck[3] (% Med.)
Avenue D			
West of 80th Street West	55	6	2.58% (71.31%)
West of Sierra Highway	55	6	2.58% (71.31%)
Avenue E			
West of Sierra Highway	55	6	2.58% (71.31%)
West of 50th Street East	55	6	2.58% (71.31%)
East of 50th Street East	55	6	2.58% (71.31%)
Avenue G			
West of Antelope Valley Freeway	55	6	2.58% (71.31%)
West of 10th Street West	55	6	2.58% (71.31%)
West of Division Street	55	6	2.58% (71.31%)
West of 90th Street East	55	6	2.58% (71.31%)
Avenue H			
West of 30th Street West	55	6	2.58% (71.31%)
West of Sierra Highway	50	6	2.58% (71.31%)
East of Division Street	55	6	2.58% (71.31%)
Avenue I			
West of 50th Street West	55	6	2.58% (71.31%)
West of Antelope Valley Freeway	50	24	2.58% (71.31%)
West of Sierra Highway	40	24	2.58% (71.31%)
West of 20th Street East	50	24	2.58% (71.31%)
West of 30th Street East	50	18	2.58% (71.31%)
West of 40th Street East	55	18	2.58% (71.31%)
West of 120th Street East	55	6	2.58% (71.31%)
Lancaster Boulevard			
West of 20th Street West	45	24	2.58% (71.31%)
West of Division Street	40	24	2.58% (71.31%)
West of 5th Street East	45	6	2.58% (71.31%)
West of 20th Street East	50	6	2.58% (71.31%)
West of 50th Street East	55	6	2.58% (71.31%)
Avenue J			
West of 90th Street West	55	6	2.58% (71.31%)
West of 60th Street West	55	6	2.58% (71.31%)
West of 40th Street West	55	6	2.58% (71.31%)
West of Antelope Valley Freeway	45	6	2.58% (71.31%)
West of 20th Street West	45	24	2.58% (71.31%)
West of Division Street	40	24	2.58% (71.31%)
West of 15th Street East	45	24	2.58% (71.31%)
West of 20th Street East	50	24	2.58% (71.31%)
West of 120th Street East	55	6	2.58% (71.31%)
Avenue K			
West of 50th Street West	55	6	4.0% (71.31%)
West of 30th Street West	50	24	4.0% (71.31%)
West of Division Street	45	24	4.0% (71.31%)
West of 20th Street East	50	24	4.0% (71.31%)
West of 50th Street East	55	6	4.0% (71.31%)
West of 90th Street East	55	6	4.0% (71.31%)
East of 90th Street East	55	6	4.0% (71.31%)
Avenue L			
West of 40th Street West	50	6	4.0% (71.31%)
West of 10th Street West	50	6	4.0% (71.31%)
West of Sierra Highway	50	6	4.0% (71.31%)
West of 10th Street East	45	6	4.0% (71.31%)
West of 60th Street East	55	6	4.0% (71.31%)

Table III-C-12 (Continued)
Existing Conditions
Assumptions for FHWA RD-77-108 Noise Model

Roadway	Speed[1] (mph)	Half-Width[2] (feet)	Percent Truck[3] (% Med.)
Avenue M			
West of 50th Street West	40	6	4.0% (71.31%)
West of Antelope Valley Freeway	50	6	4.0% (71.31%)
West of 10th Street East	40	18	4.0% (71.31%)
90th Street West			
North of Avenue A	55	6	2.58% (71.31%)
70th Street West			
North of Avenue J	55	6	2.58% (71.31%)
North of Avenue L	55	6	2.58% (71.31%)
North of Avenue M	55	6	2.58% (71.31%)
60th Street West			
North of Avenue I	55	6	2.58% (71.31%)
North of Avenue M	55	6	2.58% (71.31%)
50th Street West			
North of Avenue J	55	6	2.58% (71.31%)
North of Avenue L	55	6	2.58% (71.31%)
North of Avenue M	55	6	2.58% (71.31%)
40th Street West			
North of Avenue K	55	6	2.58% (71.31%)
30th Street West			
North of Avenue H	55	6	2.58% (71.31%)
North of Avenue J	50	24	2.58% (71.31%)
North of Avenue K	50	24	2.58% (71.31%)
North of Avenue L	50	24	2.58% (71.31%)
North of Avenue M	50	6	2.58% (71.31%)
20th Street West			
North of Lancaster Boulevard	45	24	2.58% (71.31%)
North of Avenue J	45	24	2.58% (71.31%)
North of Avenue K	45	24	2.58% (71.31%)
North of Avenue L	50	24	2.58% (71.31%)
North of Avenue M	55	6	2.58% (71.31%)
10th Street West			
North of Avenue H	55	6	2.58% (71.31%)
North of Avenue I	45	24	2.58% (71.31%)
North of Avenue J	40	30	2.58% (71.31%)
North of Avenue M	50	6	2.58% (71.31%)
Sierra Highway			
North of Avenue I	45	24	4.0% (71.31%)
North of Avenue J	40	18	4.0% (71.31%)
North of Avenue K	40	24	4.0% (71.31%)
North of Avenue M	55	18	4.0% (71.31%)
Division Street			
North of Avenue G	55	6	2.58% (71.31%)
North of Avenue H	40	6	2.58% (71.31%)
North of Lancaster Boulevard	40	6	2.58% (71.31%)
North of Avenue J	45	24	2.58% (71.31%)
North of Avenue L	45	24	2.58% (71.31%)
10th Street East			
North of Avenue H	55	6	2.58% (71.31%)
North of Avenue I	55	6	2.58% (71.31%)
North of Lancaster Boulevard	45	6	2.58% (71.31%)
North of Avenue J	45	24	2.58% (71.31%)
North of Avenue K	45	24	2.58% (71.31%)
North of Avenue M	55	6	2.58% (71.31%)

Table III-C-12 (Continued)
Existing Conditions
Assumptions For FHWA RD-77-108 Noise Model

Roadway	Speed[1] (mph)	Half-Width[2] (feet)	Percent Truck[3] (% Med.)
20th Street East			
North of Avenue I	50	6	2.58% (71.31%)
North of Avenue J	50	6	2.58% (71.31%)
North of Avenue K	50	6	2.58% (71.31%)
North of Avenue L	55	6	2.58% (71.31%)
30th Street East			
North of Avenue H	55	6	2.58% (71.31%)
North of Avenue L	55	6	2.58% (71.31%)
40th Street East			
North of Avenue I	55	6	2.58% (71.31%)
North of Avenue L	55	6	2.58% (71.31%)
50th Street East			
North of Avenue I	55	6	2.58% (71.31%)
North of Avenue K	55	6	2.58% (71.31%)
North of Avenue L	55	6	2.58% (71.31%)
70th Street East			
North of Avenue J	55	6	2.58% (71.31%)
North of Avenue L	55	6	2.58% (71.31%)
90th Street East			
North of Avenue L	55	6	2.58% (71.31%)
Antelope Valley Freeway			
North of Avenue D	55	63	9.5% (43.0%)
North of Avenue F	55	63	9.5% (43.0%)
North of Avenue H	55	63	9.5% (43.0%)
North of Avenue I	55	63	9.5% (43.0%)
North of Avenue J	55	63	9.5% (43.0%)
North of Avenue L	55	63	8.4% (46.8%)
North of Avenue M	55	63	8.4% (46.8%)

Source: Endo Engineering, 1990.

1 Speed is based upon posted speed limits, information provided by the City of Lancaster and DKS Associates, or conditions observed during Endo Engineering field survey.

2 This value is the effective half-width, which is the distance from the roadway centerline to the center of the outermost travel lane.

3 The 2.58% (71.31%) truck mix was taken from the temporal traffic distribution found in Orange County and was assumed for all southern California surface streets. Truck mix for Avenue K, Avenue L, Avenue M, and Sierra Highway was provided by the City of Lancaster. The truck mix for the Antelope Valley Freeway was taken from "1988 Annual Average Daily Truck Traffic on the California State Highway System."

D. AIR INSTALLATION LAND USE COMPATIBILITY

1. EXISTING SETTING

a. Facilities

There are three major Federal Aviation Administration (FAA) recognized facilities located in and around the City of Lancaster. Two of these facilities, Edwards Air Force Base and Air Force Plant 42, are military facilities. In addition, the civilian Palmdale Regional Airport presently shares the site and runways of Plant 42. The third facility is the general aviation Fox Field airport (see Figure III-D-1).

Edwards Air Force Base is located northeast of the City of Lancaster. The base's southern boundary is approximately four miles north of downtown Lancaster, while the base's runways and main operations center are located about twenty miles northeast of downtown. Edwards is considered one of the finest flight testing and research centers in the world. This is primarily due to the clear, dry desert air that allows for exceptional visual observation. The base, which is also referred to as the Air Force Flight Test Center (AFFTC), encompasses 470 square miles, including a 2.8-mile long main runway and two dry lake beds (Rogers and Rosamond), which provide additional runways. The NASA Space Shuttle utilizes the Rogers Dry Lake Bed at the Edwards Center as its landing site following missions in space. The base has the capability to test and evaluate subsystems (parts of planes that are assembled elsewhere and incorporated into planes as one piece), as well as total weapon systems (USAF 1987).

The Precision Impact Range Area (PIRA) is a principal land use on the base, and occupies the southeastern third of the base. This area is divided into the West Range, the East Range, and the Precision Bombing Range (PB-6). The West Range consists of seven precision bombing circles, an infrared target with scoring, and the dual air-to-ground gunnery range. Several of the targets are instrumental. The East Range consists of two precision bombing circles and an air-to-ground gunnery and rocket range. The PB-6 range is used for gunfire from helicopters and is a primary jettison area for non explosive ordinance (see Figure III-D-1).

The United States Air Force **Plant 42**, located southeast of the City of Lancaster, occupies 5,832 acres (9.1 square miles), and houses several specialized military aerospace programs. In 1954, the County of Los Angeles sold this site to the federal government. The Plant is used for aircraft research, assembly, and testing. The Plant contains two main runways, each about 12,000 feet long, with numerous buildings and hangers for the testing, maintenance, and monitoring of aircraft. It is most recently known as the "hiding place" of the Northrop B-2 Stealth Bomber (Cafiero 1989 and AVP 1990).

The growth in the 1960's of commercial airline utilization enabled Lockheed to begin constructing commercial aircraft at Plant 42. Although this production has slowed in the 1980's, there is still modification and testing of commercial planes at Plant 42.

The **Palmdale Regional Airport** is a joint use facility; it is a civilian airport operating on 62 acres of land leased from Plant 42. The joint use agreements between Los Angeles Department of Airports (which operates the airport) and the U.S. Air Force allowed for the airport to be built and operated under a 25 year lease. While the Federal Aviation Administration (FAA) runway certification

actually belongs to Plant 42, the joint use agreement allows the Los Angeles Department of Airports to operate Palmdale Regional Airport on the two existing Plant 42 runways. Los Angeles Department of Airports (DOA) owns only the terminal building. Plant 42 provides fire and security services for the whole airport except for the terminal building itself, which is handled by the DOA (Brown 1990).

Current commercial aviation activity at Palmdale Regional Airport is relatively low compared to DOA's other commercial airports (Los Angeles International and Ontario International airports). However, a significant expansion of operations at Palmdale Regional Airport is projected. The DOA projects that operations at Palmdale Regional Airport will increase from 16,581 passengers in the first half of 1990 to about eight million passengers annually by the Year 2010. By comparison, 1990 Ontario Airport traffic is estimated to be slightly over five million passengers.

Beyond the year 2010, Palmdale Regional Airport may expand to the 17,500 acres (27.3 square miles) east of the existing site. During the late 1980's, it was planned that this facility would eventually become an international airport.

There is also a community-based organization called the "Supporters of Palmdale Regional Airport" which promotes business activities at the airport (Antelope Valley Press, 1990). Groups of business people surrounding airports often form such groups to support airport expansion that will have a positive impact on their businesses.

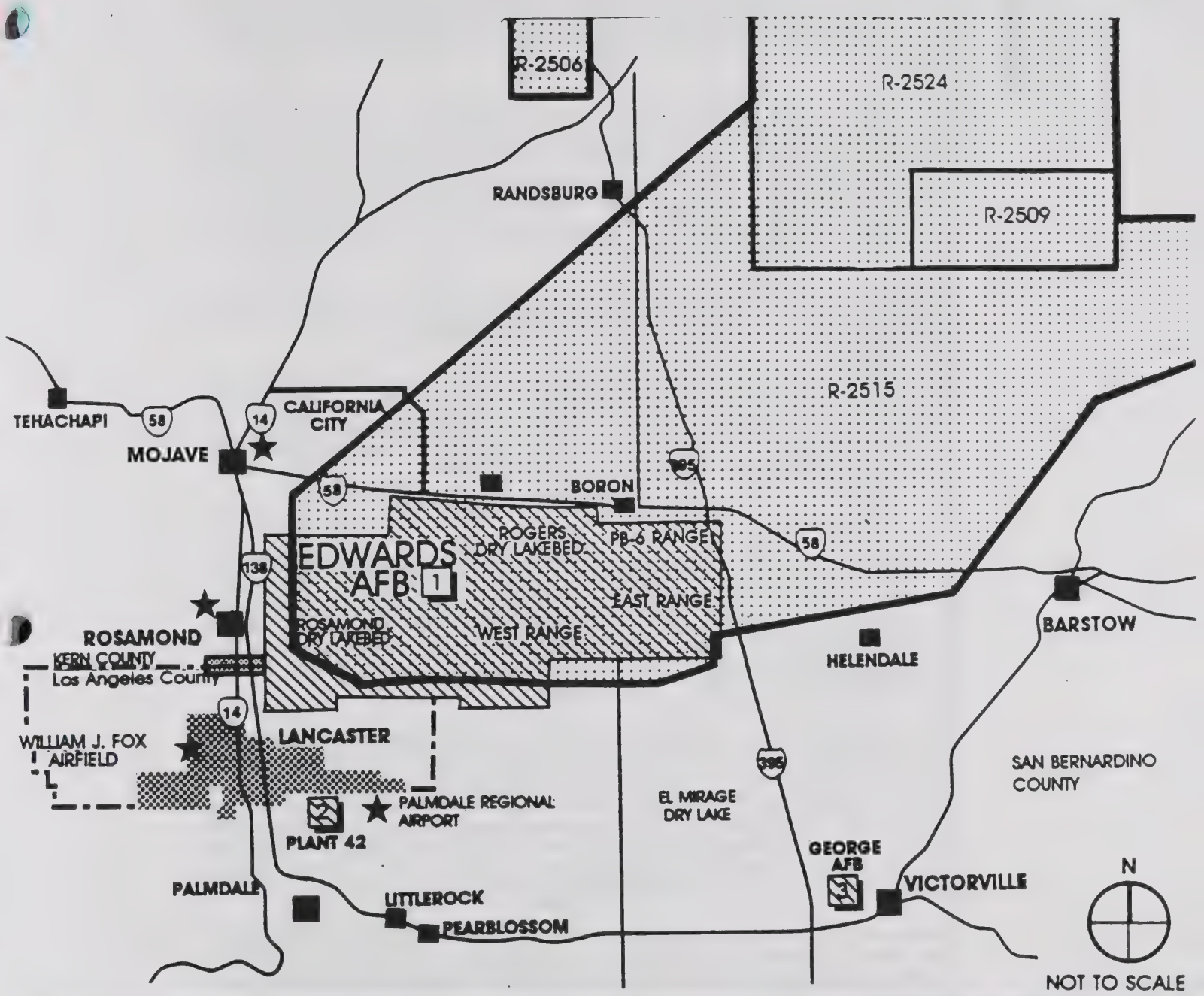
The other civilian facility is the **General William J. Fox Airport**, also known as Fox Field. It is located within the city limits, approximately five miles northwest of downtown Lancaster. The airport encompasses approximately 1,120 acres, and is bounded by Avenue F to the north, Avenue G to the south, Apollo Park to the east, and 60th Street West to the west. Principal activities at the airport consist of a passenger terminal, three private flight schools, and the U.S. Forest Service Air Tanker Base (Abing 1990). While the airfield land is owned by the County, approximately half of the buildings on-site are owned by private firms that utilize the airport (Abing 1990).

In addition to these major facilities, there are a number of small landing strips and dirt runways in the desert portions of the study area. These are strips of land cleared by the owners, and do not require approval by the Federal Aviation Administration (Green, 1990). Pilots utilize these small landing strips until development takes place nearby, and they no longer feel safe landing.

b. Operations

Because of the need for safety, as well as security, military and civilian research flights are usually conducted within flight corridors limited to only their use. These corridors are considered to have "restricted airspace." Edwards Air Force Base occupies the R-2515 Airspace Complex, which encompasses much of the airspace north and northeast of Lancaster to the California/Nevada border (see Figure III-D-1). R-2515, R2509, R2506, and R2524 are areas with total airspace restrictions where nonmilitary aircraft are not allowed to fly at any level (see Figure III-D-1). Most of the military flight activity is outside of the Lancaster study area to the north and northeast. However, there is one major flight corridor of concern to the Lancaster area. The VR-232/VR1206 low altitude corridor, where subsonic flight is permitted from the surface to 9,500 feet above ground level, passes over the northwestern portion of the study area north of Avenue C (see Figure III-D-1).

FIGURE III-D-1



AIR INSTALLATIONS

PLANNING NETWORK

- AIR FORCE TEST CENTER AND/OR FLIGHT RANGES
- MILITARY INSTALLATIONS
  1. Edwards Air Force Base
  2. Air Force Plant 42
  3. George Air Force Base
- CIVILIAN INSTALLATIONS
  - Palmdale Regional Airport
  - William J. Fox Airfield
  - Rosamond
  - Mojave
- LANCASTER CITY LIMITS
- AVENUE A CORRIDOR (VR-232/VR-1206)

CITY OF LANCASTER
GENERAL PLAN

SOURCE: Edwards Air Force Base, 1990.

This corridor is commonly referred to as the Avenue A corridor and is the low level approach into the Precision Impact Range Area (PIRA) at Edwards. The base has recommended that the intensity of land use along this corridor be restricted to preserve the corridor and the integrity of the Edwards mission (Johnstone, 1990).

Plant 42 has four runways which, due to the mountains south of the airfield, require all commercial aircraft to turn north after take-off, regardless of the runway used. There are eight designated flight paths that presently pass over the Lancaster area, as described in Table III-D-1. While individual flights range over a majority of Palmdale and Lancaster, most of these flights pass to the east of Lancaster, generally between the Antelope Valley Freeway and 70th Street East South of Avenue J-8 (see Figure III-D-2).

Palmdale Regional Airport now handles only a limited number of civilian operations each day, most of which are cargo operations, with Skywest Airlines providing shuttle service to airports in the Los Angeles basin.

Flights at Fox Field typically approach the runway from the northeast and takeoff to the southwest depending on wind direction (see Figure III-D-4). The 1983 Fox Field Master Plan indicated slightly over 60,000 annual operations while the 20-year expansion calls for a maximum of 440,000 operations. Air safety zones for air installations in the study area are shown in Figure III-D-3.

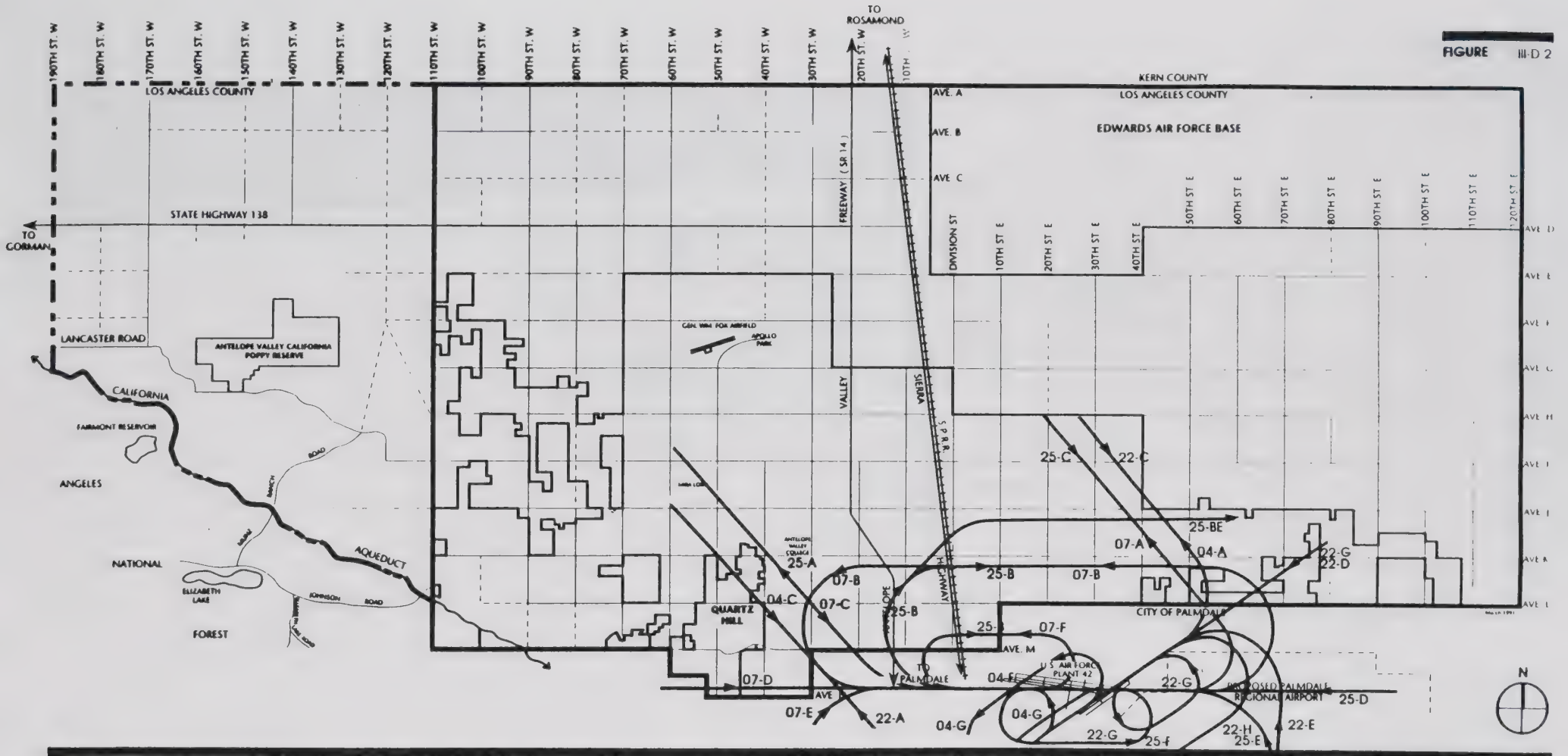
c. Accidents

People who live and work near airports are exposed to various levels of potential accidents, depending on the type of aircraft using the airport, the frequency of aircraft overflights, and local weather conditions. For both public safety and economic reasons, it is extremely important to determine an appropriate land use mix in the vicinity of airports and the potential for injury and property damage should an accident occur. This is typically done by identifying safety zones according to accident data.

One of the most important factors in identifying safety zones around airports is knowing landing patterns, takeoff patterns, areas where accidents occur, and their relative likelihood of occurrence at a given distance and location from the airport. According to the Airport Land Use Planning Handbook (Division of Aeronautics 1983), national records show that almost 50 percent of the recorded general aviation (civilian) accidents occurred on the airport property, 15 percent were in the traffic pattern or within one mile from the airport boundary, and the remaining 35 percent were beyond one mile from the airport limits.

Accidents off the airport property are generally more serious than accidents on the airport, generally because of uneven terrain, local obstructions, and lack of safety equipment nearby. However, it should be noted that these types of accidents are, by their very nature, more widely distributed than accidents nearby the airport. Thus it is more difficult to plan for these types of accidents in terms of regulating land uses, due to the amount of land involved. While it is possible for an accident to occur anywhere near an airport, most accidents occur within one mile of an airport (Division of Aeronautics 1983).

FIGURE III-D 2



PLANNING NETWORK

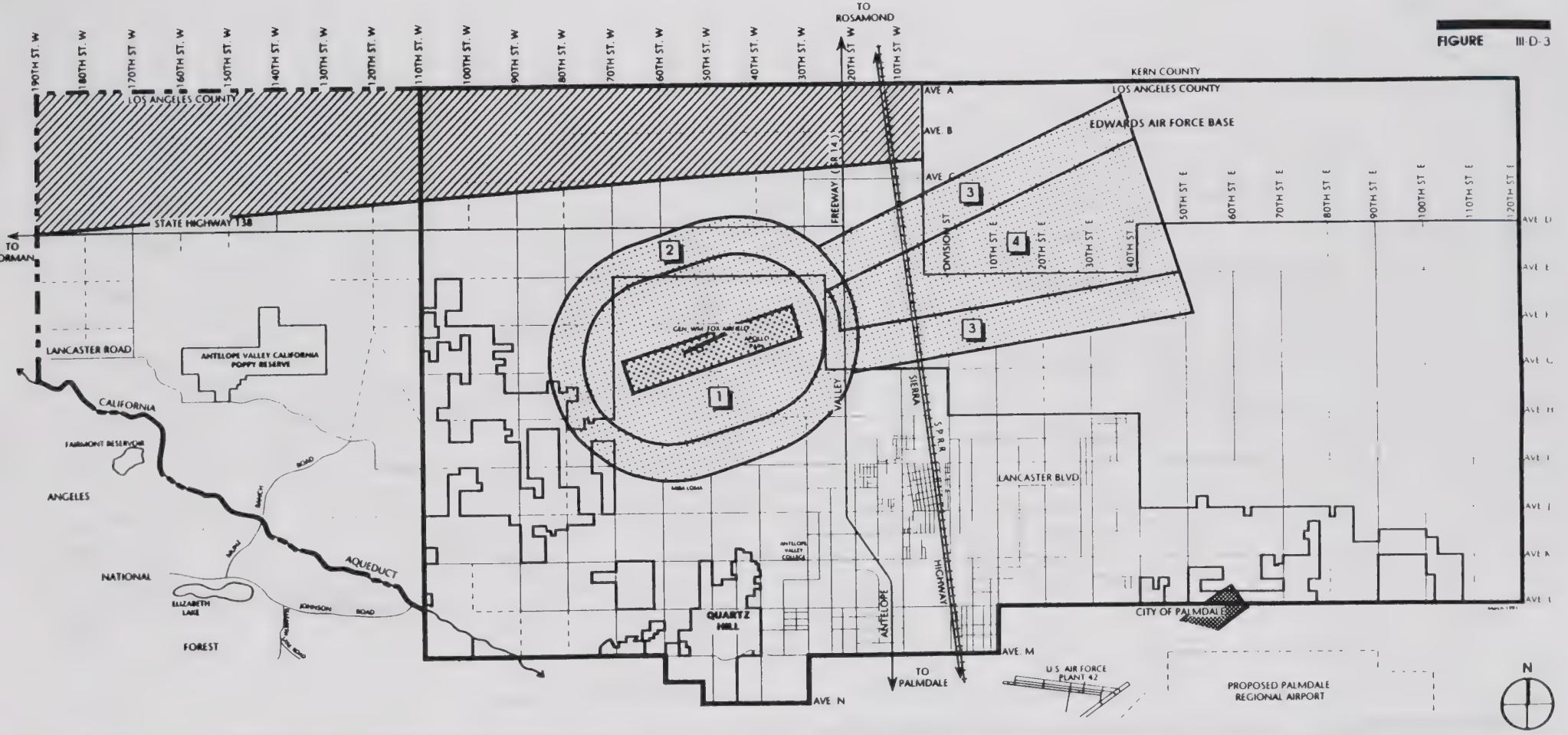
PLANT 42 FLIGHT CORRIDORS

CITY OF LANCASTER
GENERAL PLAN

GENERALIZED FLIGHT CORRIDORS
Arrowheads indicate the direction of travel for the numbered corridors

SOURCE: 1990 Plant 42 Air Installation Compatible Use Zone (AICUZ) Study.

FIGURE III-D-3



AIR INSTALLATIONS

PLANNING NETWORK

CITY OF LANCASTER
GENERAL PLAN

PROPOSED EDWARDS A.F.B. JOINT LAND USE STUDY (JLUS) AREA (Low-level Flight Corridor)

FOX FIELD APPROACH SURFACES

1. Horizontal Surface (Elevation, 2,347 feet)
2. 20:1 Conical Surface (Top, Est. Elev.,
3. 40:1 Approach Surface
4. 7:1 Transitional Surface

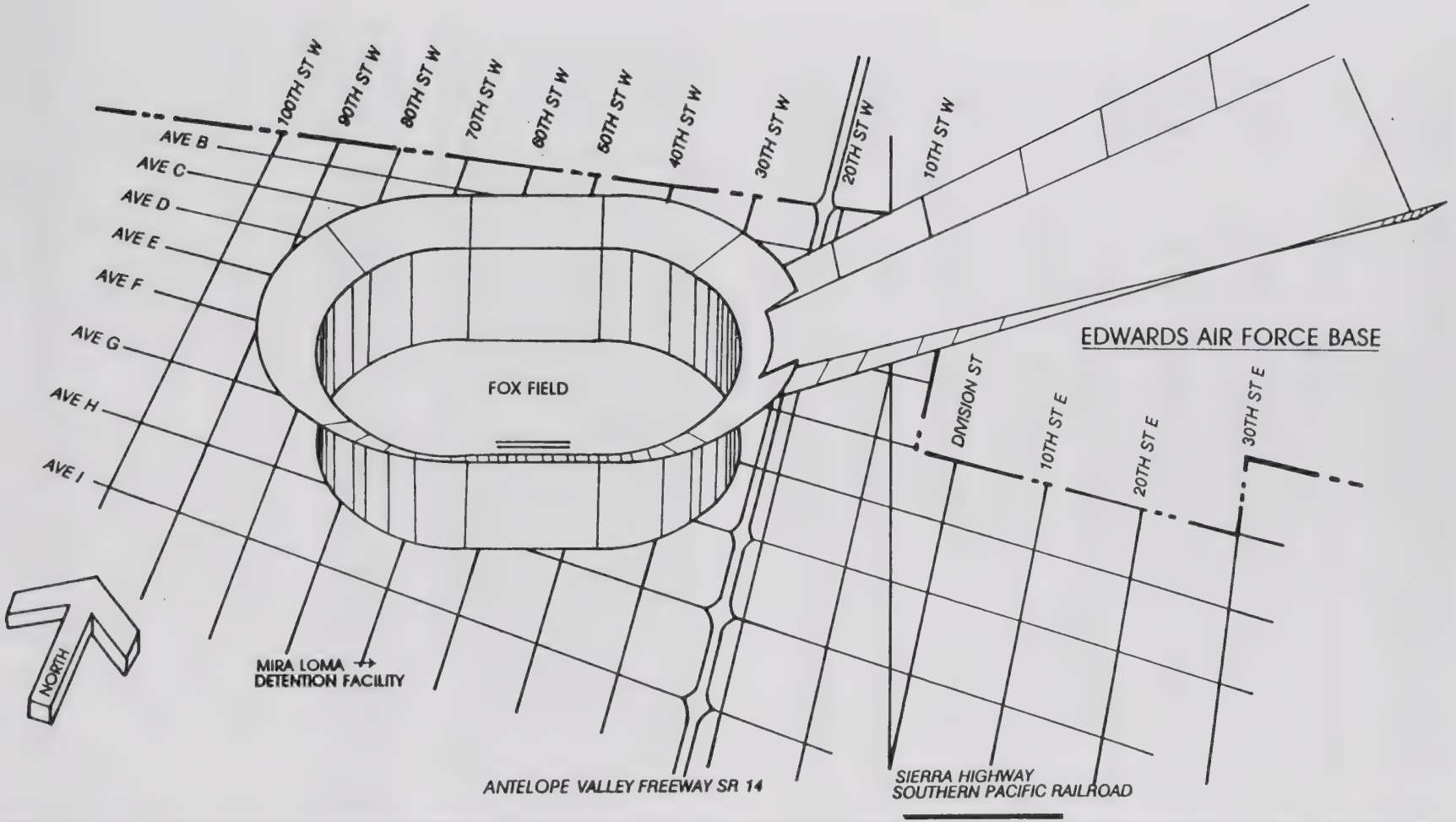
Take-off & Landing Zone

PLANT 42 AICUZ ACCIDENT POTENTIAL ZONE II

SOURCE: General William J. Fox AICUZ, 1990.
Airfield Master Plan, 1984.

Note: Although the normal approaches are as shown, aircraft landing at Fox Field are not allowed to penetrate the Restricted Airspace of R-2515. Consequently, air traffic is directed to the south of Avenue E.

FIGURE III-D-4



FOX FIELD APPROACH SURFACES

PLANNING NETWORK

CITY OF LANCASTER
GENERAL PLAN

NOMINAL SCALE: 1" = 2 Miles
10X VERTICAL EXAGGERATION

SOURCE:
General William J. Fox Airfield Master Plan, 1984.

Note:
Although the normal approaches are as shown, aircraft landing at Fox Field cannot penetrate the Restricted Airspace of R-2515. Consequently, air traffic is directed to the South of Avenue E.

Table III-D-1
Plant 42 Flight Tracks

Path	Direction	Location of Flight Track
22-C	South	Northwest to southeast, crosses Avenue I at 35th Street East
25-C	South	Northwest to southeast, crosses Avenue I at 25th Street East
25-BE	East	Parallel to I-8 east of Sierra Highway, then southwest to Avenue L
25-B	Both	Parallel to J-8 between 70th Street East and 30th Street West
07-F	Both	Parallel to and just north of Avenue L between 25th Street East and 5th Street West
22-6 22-D	South	Northeast to southwest, crosses Avenue L at 35th Street East
04-C	South	Northwest to southeast, crosses Avenue L at 35th Street West
25-A 07-C	Both	Northwest to southeast, crosses Avenue L at 25th Street West

Source: U.S. Air Force, "Flight Tracks at Plant 42," AICUZ 1990.

Data collected by the California Division of Aeronautics (1983) show that of the accidents that occurred within one mile of an airport, 33 percent happened within a quarter of a mile, while 29 percent occurred during take offs or approaches. Serious accidents near airports and military installations are evenly divided between takeoffs and landings. Engine failure is the most frequent type of accident, while weather is the most frequent cause of fatal accidents. While military aircraft are typically of higher performance than civilian aircraft, the types of accidents and causes are very similar to general aviation accidents. In contrast to civilian accidents, however, over half of all fatal military accidents occur more than a mile from the airport. Table III-D-2 shows the accident record for the runways at Plant 42 which would include the Palmdale Regional Airport.

Information collected as part of the new Air Installation Compatible Use Zone (AICUZ) report for Plant 42 (1990) shows the following accident statistics specifically for military aircraft (as shown in Table III-D-2, Figure III-D-5, and Table III-D-3).

Table III-D-2
Aircraft Accident Statistics

Operations:	61% landing / 39% takeoff
	80% during fighter and training flights
	70% daylight / 30% night
Locations:	CLEAR ZONE
	27% on runway or within 1,000 feet on either side (extended)
	29% in area extended 3,000 feet out from runway (square)
	ACCIDENT POTENTIAL ZONES (1&2)
	13% in area extended from 3,000 to 15,000 feet beyond runway

Source: Air Installation Compatible Use Zone (AICUZ) Report for Plant 42 (1990).

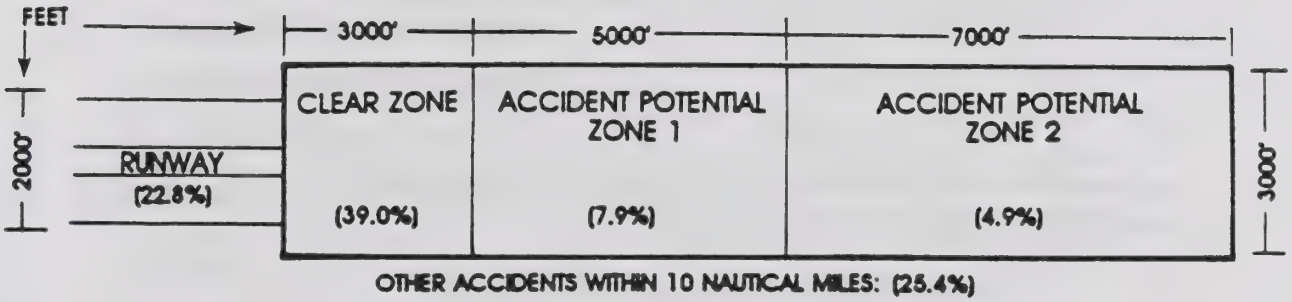
Military and civilian accident data indicates that land uses under airport traffic patterns, especially those associated with landings and takeoffs, should be a significant safety concern to airport and land planning officials, both civilian and military. At present, restricting land uses around an airport in the areas most likely to experience aircraft accidents has proven to be the most economical method of providing the best protection for the public health and safety (Division of Aeronautics 1983).

d. Safety Zones

By analyzing accident history data, it is possible to establish safety zones around military and civilian airports. These zones define the areas in which land use restrictions are established to protect the public's safety on the ground. One common approach to delineate civilian airport safety zones is to use the Federal Aviation Administration (FAA) clear zones and imaginary approach surfaces that extend outward from an airport's runways along the extended runway centerline. FAA clear zones are fan-shaped (trapezoidal) areas nearest to the runway that must be kept clear of major structures or concentrations of people.

Federal Aviation Regulations Part 77, which address "Objects Affecting Navigable Airspace," establishes various imaginary surfaces, including approach surfaces, for determining when the heights of objects or structures may present a safety problem for aircraft using an airport. In practice, no physical structures are allowed to penetrate these surfaces, both for aircraft safety and radar operation. These surfaces slope upward from the runway at various angles, depending on the type of aircraft using the airport and airport weather capability (Division of Aeronautics 1983).

FIGURE III-D-5



Recently, the 1976 AICUZ Study was updated to include accidents through 1985. The updated study lists 728 accidents during the 1968-1985 period.

AIR FORCE ACCIDENT DATA (1968-1985)

SOURCE: 1990 Plant 42 Air Installation Compatible Use Zone (AICUZ) Study.

Table III-D-3
Military and Civilian[1] Aircraft Accidents - Plant 42

No.	Year	Aircraft	Type	Accident Report
1.	1954	Military aircraft	T-33	Crashed on Site
2.	1958	Military aircraft	F-104	Crashed on Plant 42
3.	1958	Military aircraft	F-104	Crashed on Plant 42
4.	1959	Military aircraft	F-102	Crashed off Site
5.	1965	Military aircraft	C-97	Crashed on Plant 42
6.	1968	Military aircraft	F-4	Crashed on Plant 42
7.	1970	Military aircraft	T-38	Crashed off Site
8.	1970	Military aircraft	C-5A	Caught Fire on Plant 42
9.	1982	Military aircraft	F-5	Crashed on Plant 42
10.	1983	Civilian aircraft		Crashed on Plant 42
11.	1987	Two civilian aircraft		Collided and landed at Plant 42
12.	1988	Civilian aircraft		Crashed while landing at Plant 42
13.	1988	Two civilian aircraft		Collided and landed near Plant 42
14.	1990	Military aircraft	F-16	Crashed on Plant 42

Source: FAA Regional Office in Los Angeles

1 Civilian aircraft/accidents were not tracked prior to 1983.

In addition to sloping imaginary surfaces, rectangular inner and outer safety zones are also used to denote critical takeoff and landing corridors. When these zones are specified, the length of the inner zones is usually equal to a quarter of the length of the clear zone, or whichever is longer. The total length of the safety zone varies between 2,000 and 5,000 feet, depending on the type of aircraft. These distances are derived from where the aircraft crosses the end of the runway to where the plane touches down and rolls to a stop.

For military facilities, Accident Potential Zones (APZs) are derived from Department of Defense studies of historical accident data of military airports. Each military airport has these accident potential zones, and the number and dimensions vary according to the category of aircraft using the airport. These zones are categorized as follows:

- *Clear zone:* The clear zone lies immediately beyond the end of the runway and extends outward along the extended runway centerline for a distance of 3,000 feet. This distance was chosen because it represents the area within which two-thirds of all accidents occur (Plant 42 AICUZ 1990 Volume 2). A clear zone is applied to each active runway. However, all the clear zones for Plant 42 are located outside the General Plan Study Areas.

- *Accident Potential Zone I:* APZ I is a rectangular area beyond the clear zone which possesses a significant potential for accidents. Typically, this zone is 3,000 feet wide by 5,000 feet long, and is shaped to conform to the shape of the flight paths, since accidents occur more frequently on approaches than departures. The Air Force has recommended significant limitations on the types of allowable land uses and their intensity as a means of reducing concentrations of people within this area. APZ I zones for Plant 42 are located outside of the Lancaster General Plan Study area.

- *Accident Potential Zone II:* APZ II is a rectangular area that extends beyond APZ I that still has a measurable potential for accidents. APZ II is normally designated under a flight path whenever APZ I is required. Dimensions of these zones are usually 3,000 feet wide by 7,000 feet long. If APZ I is not required, then APZ II is not normally required, since there is much less chance of a serious accident (as evidenced by having Zone I). However, it may be required without a corresponding Zone I if an analysis of accidents and operations indicates the need for this zone. APZ II may be modified to represent the actual curve of a flight path. When APZ II is warranted, it is most often applied to approach paths.

e. Avigation Easements

Avigation easements are often established to allow planes to fly overhead. These easements are used in two ways: to protect airports from noise/nuisance lawsuits and as a public notice to property owners that planes are flying overhead. Avigation easements, however, are not designed to protect citizens from plane crashes.

f. Noise Levels

Many public health and safety laws in the State of California address noise level exposure to people living near airports. By December of 1985, operators of civilian airports were to have removed residential land use in areas where noise level exposure is 65 CNEL (Community Noise Exposure Level) or greater. For additional information on noise impacts, see the Noise discussion in the Public Health and Safety Section. In addition, federal air facilities such as military bases are generally bound by the same noise guidelines as local agencies to be compatible with surrounding uses (Cafiero 1989).

Aircraft and airport noises are considered invasive and detrimental to neighborhoods and residents as they can interfere with sleep, conversation, or relaxation. Such noise has also been shown to disrupt school and work activities. At extreme levels, airport noise may make outdoor activities impossible. The sound levels associated with a single aircraft operation can be roughly compared to sound levels of other isolated events encountered in daily life, such as motorcycles or trucks passing by. The actual level of sound produced by an aircraft depends on its operation (overflight, landing, or taking off), the type of aircraft, its elevation (if it is overflying a populated area), and weather conditions to some extent.

Because of the arrangements of its runways and associated flight patterns, the 65 CNEL noise contour from Edwards Air Force Base does not extend off base property. Therefore, this base is not required to provide an Air Installation Compatible Use Zone (AICUZ) Study. However, the base has requested a Joint Land Use Study (JLUS) be conducted with the communities bordering the base and its low level corridors. The purpose of this study is to establish planning boundaries around the base and low level corridors and provide a comprehensive plan for land use that defines compatible types and patterns of future land use. Although the Avenue A corridor is not based on actual or predicted noise exposure levels, the potential for high single event noise levels make it essential that development under this corridor be restricted to non-noise sensitive uses. The lower half of this corridor, generally between Avenue A and Avenue C, is within the City of Lancaster's Sphere of Influence.

Aircraft noise contours for the Air Force Plant 42, located in Palmdale, are shown in Figure III-D-6. These contours are significantly smaller (closer to Plant 42) than the previous contours shown in the 1977 Palmdale General Plan and the 1980 Lancaster General Plan. The main reasons for the changes seem to be the type of aircraft presently used, modifications in their historical flight patterns, level, and frequency of flights over populated areas. These new contours were provided by the Department of the Air Force as part of their Air Installation Compatible Use Zone (AICUZ) Study completed in 1990. This study was reviewed at various stages by representatives from the Air Force (in addition to Plant 42 personnel), the cities of Lancaster and Palmdale, the County of Los Angeles, and the Los Angeles City Department of Airports. The Lancaster Planning Advisory Committee (PAC) also reviewed this document, although approval of the AICUZ study does not require PAC approval. There is considerable public controversy at present over the location of the 65 CNEL contours for Plant 42, and what their implications will be for land uses south of Avenue K in Lancaster.

The existing noise contours for the Palmdale Regional Airport are within those of Plant 42. This is because these two facilities already share the same runways, and the Palmdale airport also has significantly fewer flights than Plant 42. However, as this facility continues to grow, it is possible that the 65 CNEL contour would extend some distance off of the airport property itself. Although much of this additional noise would only affect the City of Palmdale, the land uses south of Avenue K within the Lancaster study area could eventually be adversely affected by expansion of the Palmdale Airport, especially if moderate to high intensity uses (including residential) were allowed in this area (Cafiero 1990).

To coordinate land use decisions in the area surrounding Plant 42 and the Palmdale Regional Airport, the Joint Land Use Committee was formed. The committee included representatives from the Air Force, Los Angeles Department of Airports (LADOA), and the Cities of Lancaster and Palmdale, and developed a comprehensive airport land use plan, in conformance with the intent of California State Senate Bill 255. The committee recommended the identification of an overflight zone and the restriction of all urban density residential land uses within this area (Figures III-D-5 and III-D-6). Their rationale was that although the area is not within the 65 CNEL boundary, there are peak noise levels within the overflight area that exceed 65 CNEL. In addition, this area statistically has the next most likely crash potential after APZ areas.

In 1983, the 65 CNEL noise contour for the General William J. Fox Airfield was fully within the boundaries of the airport property, except for a small vacant area just west of 60th Street West and generally north of Avenue G (see Figure III-D-6). While community noise levels have not been measured since 1983, the present 65 CNEL contour is believed to be in approximately the same position as the contour shown in the Airport Master Plan prepared in 1984 (Slade 1989). The 65 CNEL contour is expected to expand slowly as the airport expands, based on the 20-year Fox Field Master Plan. At full expansion, the 65 CNEL contour is expected to extend off of the airport property only in the same location as it presently does, west of 60th Street West and generally north of Avenue G. While there is not a specific noise contour for future operations, it could extend about a mile beyond each end of the runway. The runway and corresponding noise contour will also probably be rotated 5-10° clockwise for conformity to Edwards Air Force Base's airspace needs. The noise contour will extend outwards a considerably greater distance because the future longer runway will accommodate much larger aircraft. The Master Plan indicates that the 65 CNEL contour covered 269 acres in 1983 and will cover 480 acres by the year 2003.

g. Land Use Planning for Military Bases

Military flight installations are governed by the Department of Defense (DOD), but are subject to various Federal Aviation Administration (FAA) requirements, as well as other military regulations. The Air Installation Compatible Use Zone (AICUZ) program was developed by the DOD for military airbases to provide a mechanism for cooperation between military and civilian authorities to prevent land use conflicts around airbases. Potential conflicts are addressed through three types of land planning guidelines; height restrictions, noise zones, and accident potential zones.

The DOD maintains height restrictions against incursions of structures into military airspace, similar to the imaginary surfaces defined for civilian facilities. The DOD has promulgated air obstruction guidelines identical to Federal Air Regulation Part 77 (Sub-part C) regarding height limitations. This section of the code regulates maximum building height to protect planes by establishing an imaginary surface into which buildings may not project. All of the low altitude flight corridors and landing/takeoff approaches are within the property limits of the military bases. Since Edwards is authorized to fly from the surface to 9500 feet above the surface in the Avenue A corridor, structures cannot exceed 60 feet in height without specific approval. Height restriction from that facility will not have an effect on planning land uses within the General Plan study area. However, low level flight operations in the Avenue A corridor dictate that building height in the area should not exceed 65 feet.

Noise levels are the second major land use planning consideration for military bases. The 1990 AICUZ study for Plant 42 mapped the major noise contours that could affect local land use. Within the Lancaster study area, the 65 CNEL contour generally affects the land south of K-8 between 20th Street East and 25th Street West (see Figure III-D-6).

Accident Potential Zones are the third major land planning constraint for military bases. Within the Lancaster study area, approximately 100 acres of land, located north of Avenue L at 60th Street East, is within APZ II of Plant 42. The 1990 Plant 42 AICUZ recommends guidelines for various land uses in terms of noise and accident zones (see Table III-D-4).

At Edwards Air Force Base, the Department of Defense has requested a Joint Land Use Study to develop a land use plan with local agencies that will be compatible with the Edwards flight test mission. The primary goal of this study is to assist communities in incorporating recommendations from DOD into local land use plans and implementation measures to protect Edwards Air Force Base from encroachment and noise complaints. Implementation measures may include amended building codes to require added sound attenuation, land exchanges, fair disclosure of noise levels to property buyers, or traditional local development controls such as zoning, subdivision regulations, height restrictions, and other measures. Within the first mile of the proposed low level flight corridor (generally between Avenue A and Avenue B), base officials recommend low density uses such as rural residential (one residence per 2-1/2 acres), agriculture, or light industrial uses. In the mile between Avenue B and Avenue C, a higher density is possible. All development in the corridor should require an avigation easement.

h. Airport Land Use Commissions

In response to state-wide concerns about public safety and other environmental impacts of airports, the state initiated the formation of County Airport Land Use Commissions (ALUC). These regional commissions are comprised of appointed representatives from municipal jurisdictions affected by a particular airport, and are charged with reviewing land use policies and proposals surrounding the airport. For most jurisdictions, an ALUC has the authority to review and approve land uses within a two mile radius of an airport. However, the recent passage of Senate Bill 255, which became effective on January 1, 1990, may have significant implications on local airport land use planning. The Bill set June 30, 1991 as the deadline for Airport Land Use Commissions to adopt their airport land use plans. This deadline was extended to January 1, 1992 by the passage of SB 1288. SB-255 also established two new actions regarding airport planning, as well as created considerable controversy over the interpretation of its implementation. Other, more recent attempts to exclude Los Angeles County from the requirements of having to form an ALUC have been vetoed by Governor Wilson.

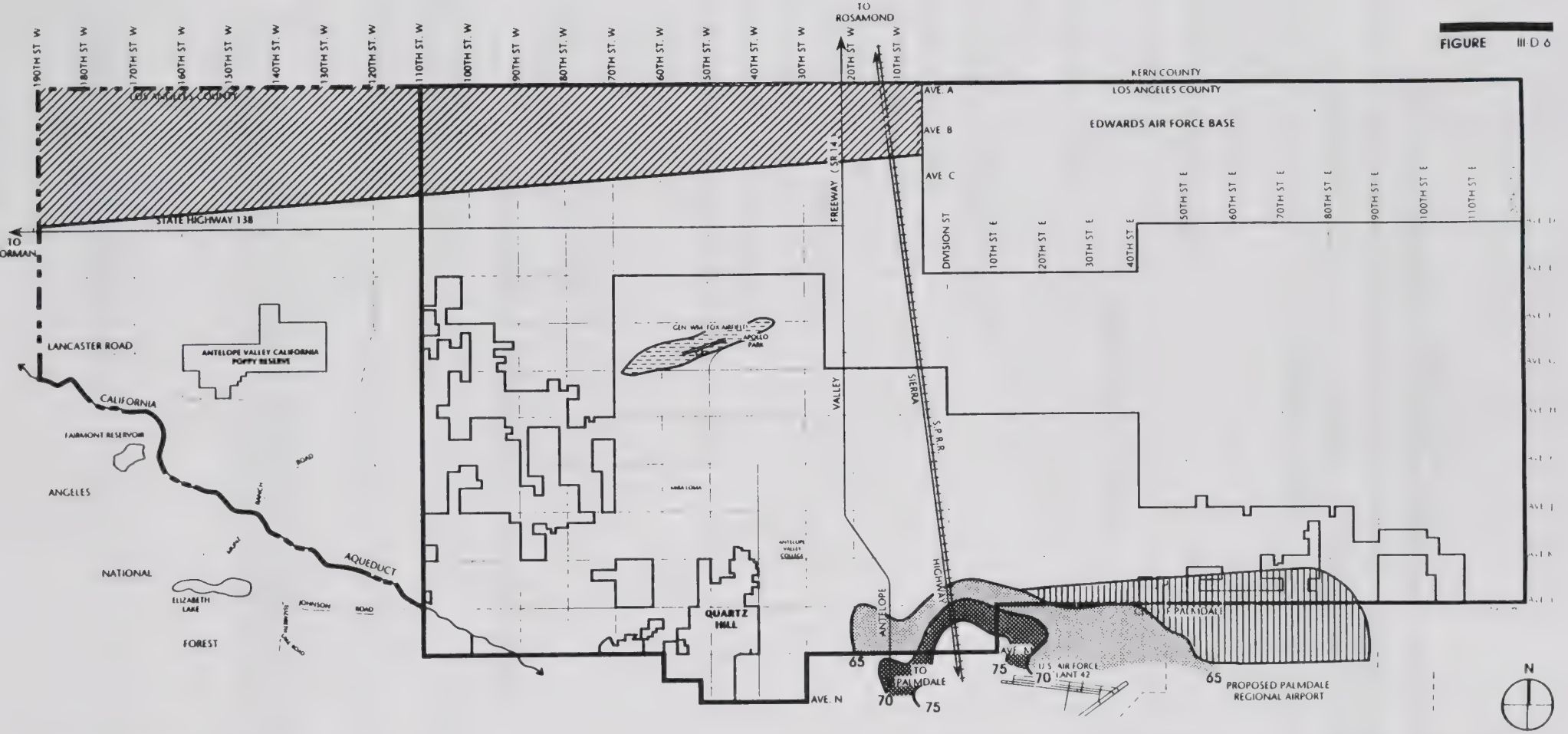
The following is derived from current legislative information as provided by the Los Angeles County Airport Land Use Commission offices in Los Angeles: the first major change from the previous language postpones all lawsuits that would stop development until the plans are adopted. As of June 1, 1990, SB 255 suspended lawsuits that would shut down development until the ALUC adopted its plan, or until January 1, 1992.

The second major change from existing law is that, beginning January 1, 1990, SB 255 allows an ALUC to charge fees for review of proposals. These fees however, cannot exceed the estimated reasonable cost of providing the service.

Even with these two changes, the crucial issue being debated between the County and the City is how the law applies to airports that do not have a "comprehensive land use plan." All "actions, regulations and permits within the vicinity of a public airport" must go to the ALUC for review and approval. "Vicinity" is any land which reasonably could be included in the new comprehensive land use plan. The ALUC can establish the planning boundaries; if not, "vicinity" means the area within two miles of the airport's exterior boundary, according to the legislative analysis provided by the County Airport Land Use Commission (1990).

If the ALUC disapproves a development, a City Council or County Board of Supervisors can overrule the ALUC on a four-fifths vote, but only if it makes a specific finding that the proposed project is consistent with local statutory policies.

FIGURE III-D 6



AIR INSTALLATIONS-NOISE ZONES

PLANNING NETWORK

- PROPOSED EDWARDS A.F.B. JOINT LAND USE STUDY (JLUS) AREA (Low-level Flight Corridor)
- ULTIMATE FOX FIELD 65 CNEL AREA
- PLANT 42 CNEL AREAS
  - 65-70 CNEL
  - 70-75 CNEL
- PLANT 42 OVERFLIGHT ZONE

SOURCES:
1) General William J. Fox Airfield Master Plan,1983.
2) Preliminary Data on Edwards A.F.B. JLUS Study.
3) Plant 42 Air Installation Compatible Use Zones (AICUZ) Study, 1990

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Table III-D-4
Air Force Recommended Land Use Compatibility Guidelines

Land Use	APZ II	Noise Zones 60-65	65-70	70-75
Residential Uses				
Single Family Residential	Y[1]	Yx	25[11]	30[11]
Multiple Family Residential	N	Yx	25[11]	30[11]
Mobilehome Parks and Subdivisions	N	Yx	N	N
Hotels and Motels	N	Yx	25[11]	30[11]
Manufacturing Uses				
Food and kindred products	Y	Y	Y	Y[12]
Textile mill	Y	Y	Y	Y[12]
Apparel and other finished products made from fabrics, leather, and similar materials	N[2]	Y	Y	Y[12]
Lumber and wood products	Y	Y	Y	Y[12]
Furniture and fixtures	Y	Y	Y	Y[12]
Paper and allied products	Y	Y	Y	Y[12]
Printing, publishing, and allied industries	Y	Y	Y	Y[12]
Chemicals and allied products	N[2]	Y	Y	Y[12]
Petroleum refining and related industries	Y	Y	Y	Y[12]
Rubber and miscellaneous plastic products	N[2]	Y	Y	Y[12]
Stone, clay, and glass products	Y	Y	Y	Y[12]
Fabricated metal products	Y	Y	Y	Y[12]
Professional, scientific, and controlling mechanisms; photographic and optical goods; watches and clocks	N[2]	Y	Y	25
Transportation, Communications and Utility Uses				
Miscellaneous	Y[2]	Y	Y	Y[12]
Railroad, rapid transit, and street rail transportation	Y	Y	Y	Y[12]
Motor vehicle transportation	Y	Y	Y	Y[12]

Legend

Y	(Yes) - Land use and related structures compatible without restrictions
N	(No) - Land use and related structures are not compatible and should be prohibited
Y_x	(Yes with Restrictions) - Land use and related structures generally compatible

Table III-D-4 (Continued)
Air Force Recommended Land Use Compatibility Guidelines

Land Use	APZ II	Noise Zones 60-65	65-70	70-75
Aircraft transportation	Y	Y	Y	Y[12]
Highway and street rights-of-way	Y	Y	Y	Y[12]
Automobile parking	Y	Y	Y	Y[12]
Communication	Y	Y	Y	Y[12]
Utilities	Y	Y	Y	Y
Other transportation, communication, and utilities	Y	Y	Y	Y[15]
Retail and Wholesale Trade				
Wholesale trade	Y	Y	Y	Y[12]
Retail building materials, hardware, and farm equipment	Y	Y	Y	Y[12]
Retail general merchandise	Y[2]	Y	Y	25
Retail food stores	Y[2]	Y	Y	25
Retail automotive, marine, aircraft, and accessories sales	Y[2]	Y	Y	25
Retail apparel and accessories sales	Y[2]	Y	Y	25
Retail furniture, home furnishings, and equipment sales	Y[2]	Y	Y	25
Eating and drinking establishments	N[2]	Y	Y	25
Other retail trade	Y[2]	Y	Y	25
Service Uses				
Finance, insurance, and real estate	Y[6]	Y	Y	25
Personal services	Y[6]	Y	Y	25
Cemeteries	Y[7]	Y	Y	Y[12]
Business services	Y[8]	Y	Y	Y[12]
Repair services	Y	Y	Y	Y[12]

Legend

Y	(yes) - Land use and related structures compatible without restrictions
N	(No) - Land use and related structures are not compatible and should be prohibited
Yx	(yes with Restrictions) - Land use and related structures generally compatible

Table III-D-4 (Continued)
Air Force Recommended Land Use Compatibility Guidelines

Land Use	APZ II	Noise Zones 60-65	65-70	70-75
Professional services	Y[6]	Y	Y	Y[12]
Hospitals, nursing homes	N	Y	Y	25
Other medical facilities	N	Y	25[22]	30[22]
Contract construction services	Y	Y	Y	25
Governmental Services	Y[6]	Y	Y	25
Educational services	N	Y	Y[22]	25[22]
Miscellaneous services	Y[2]	Y	25[22]	30[22]
Cultural, Entertainment, and Recreation Uses				
Cultural activities (including churches)	N[2]	Y[22]	25[22]	30[22]
Nature exhibits	Y	Y[22]	Y[22]	Y[22]
Public assembly	N	Y	Y	N
Auditoriums, concert halls	N	Y	25	30
Outdoor sports arenas, spectator sports	N	Y	Y[17]	Y[17]
Amusements	Y[8]	Y	Y	Y
Recreational activities (including golf courses, riding stables, water recreation)	Y	Y[22]	Y[22]	25[22]
Resorts and group camps	N	Y[22]	Y[22]	Y[22]
Parks	Y[8]	Y[22]	Y[22]	Y[22]
Other cultural, entertainment, and recreation	Y[8]	Y[22]	Y[22]	Y[22]
Resource Production and Extraction Uses				
Agriculture (except livestock)	Y	Y	Y[18]	Y[19]
Livestock production, including breeding	Y	Y	Y[18]	Y[19]
Mining activities and related services	Y	Y	Y	Y
Other resource production and extraction	Y	Y	Y	Y

Source: Plant 42 Air Installation Compatible Use Zones (AICUZ) Study, 1990.

Legend

Y	(Yes) - Land use and related structures compatible without restrictions
N	(No) - Land use and related structures are not compatible and should be prohibited
Yx	(Yes with Restrictions) - Land use and related structures generally compatible

Table III-D-4 (Continued)
Air Force Recommended Land Use Compatibility Guidelines

Notes to Air Force Land Use Compatibility Recommendations:

1. Suggested maximum density is 1-2 dwellings per acre, and can possibly be increased under a planned development where maximum coverage is less than 20 percent.

2. Within each land use category, uses exist where further definition may be needed due to the variation of densities in people and structures. (See AICUZ Volume 2, Appendix F.)

3. The placing of structures, buildings, or above-ground utility lines in the clear zone is subject to severe restrictions. In a majority of the clear zones, these items are prohibited.

4. No passenger terminals and no major above-ground transmission lines in APZ I.

5. Factors to be considered: labor intensity, structural coverage, explosive characteristics, air pollution.

6. Low-intensity office uses only. Meeting places, auditoriums, etc., not recommended.

7. Excludes chapels.

8. Facilities must be low intensity.

9. Clubhouse not recommended.

10. Small areas for people gathering places are not recommended.

11.

   a. Although local conditions may require residential use, it is discouraged in CNEL 65-70, and strongly discouraged in CNEL 70-75. The absence of viable alternative development options should be determined, and an evaluation indicating that a demonstrated community need for residential use would not be met if development were prohibited in these zones should be conducted prior to approvals.

   b. Where the community determines the residential uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB (CNEL 65-70) and 30 dB (CNEL 70-75) should be incorporated into building codes and be considered in individual approvals. Normal construction can be expected to provide a NLR of 20 dB, thus the reduction requirements are often stated as 5, 10 or 15 dB over stand construction and normally assume mechanical ventilation and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels.

   c. NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, design, and use of berms and barriers can help mitigate outdoor exposure particularly from level sources. Measures that reduce noise at a site should be used whenever practical in preference to measures which only protect interior spaces.

12. Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

Table III-D-4 (Continued)
Air Force Recommended Land Use Compatibility Guidelines

13. Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

14. Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

15. If noise sensitive use indicated NLR; if not, use is compatible.

16. No buildings.

17. Land use compatible, provided special sound reinforcement systems are installed.

18. Residential buildings require a NLR of 25.

19. Residential buildings require a NLR of 30.

20. Residential buildings not permitted.

21. Land use not recommended, but if community decides use is necessary, hearing protection devices should be worn by personnel.

22. The designation of these uses as "compatible" reflects Air Force recommendation based on the individual federal agencies, and AICUZ program consideration of general cost and feasibility factors, as well as part experiences of various communities and AICUZ programs. When evaluating the application of these guidelines for inclusion in General Plan policies, other community concerns and issues must also be evaluated.

2. ANALYSIS

The selection of land uses compatible with the noise levels generated by aircraft is a critical public health and safety issue, so it is equally important to encourage the best use of land in these areas, consistent with long-range goals of a community. Noise constraints appear to be the major criteria that could limit land uses within the study area, while building height limitations and designated Accident Potential Zones (APZs) would be less significant (since they affect relatively small areas geographically).

a. Edwards Air Force Base

According to Robert Johnstone, Chief of the Plans and Policies Division at Edwards Air Force Base, no major expansion of the boundaries or operations of the base are anticipated at this time, although it will continue to support ongoing and future aircraft programs, such as the new YF-23 Advanced Tactical Fighter (ATF). At present, base personnel are most concerned about protecting the existing "Low Altitude Corridor" (LASC) flight path approach to the Instrumented Bomb Range along Avenue A (Johnstone 1990). According to preliminary information from the Joint Land Use study, this will probably be the only safety corridor in the study area proposed by base personnel for the Edwards Flight Test Center. It is located between Avenues A and Avenue C, west of the base. It also represents a potential noise constraint planning area that should be considered when considering land use alternatives for the areas north of Avenue C.

Consideration should be given to maintaining this LASC flight corridor with a mixture of low intensity uses. Light industrial or open spaces could be encouraged between Avenue A and B from 15th Street East (Edwards boundary) to 110th Street West. These uses could then be shifted south one mile to Avenue C from 110th Street West to 190th Street West to accommodate the shift in the JLUS boundary. Either low density residential (1 unit per acre) or commercial uses should be encouraged between Avenues B and C from 5th Street West (Edwards boundary) to 110th Street West. These uses could then be shifted south one mile to Avenue D from 110th Street West to 190th Street West to accommodate the shift in the JLUS boundary.

However, if the City determines that higher density uses are appropriate for this area, then efforts should be made to cluster or concentrate uses along transportation routes, or near major intersections. Such uses should be emphasized more toward the southern portion of the LASC corridor, along Avenue C east of 110th Street West and Avenue D west of 110th Street West. This will allow for less dense and open space areas oriented more into the Avenue A safety corridor, and may reduce potential future conflicts between base operations and local residents and employees.

In addition, all of the properties north of Avenue C, between 5th Street West and 110th Street West, and north of Avenue D between 110th West and 190th Street West, should provide avigation easements to adequately protect both property owners and the airflight corridor in this area.

b. Plant 42

Plant 42 has the potential to house a variety of new or expanded programs, such as the B-2 Stealth Bomber. The Plant has had 20 percent more flight operations in 1990 than during 1989, and only 25 percent of that increase could be attributed to commercial flights from the Palmdale Airport (Brown, 1990). It is therefore likely that activity at Plant 42 will continue at its present level, if not increase operations, in the future. Recent global events, such as those in the Middle East, serve to strengthen arguments for maintaining present levels of aircraft technology, despite warming relations with the Soviet Union.

The 65 CNEL noise contour for Plant 42 presently occupies a portion of the study area south of Avenues L and M, near the Sierra Highway. According to the previously adopted AICUZ Study (1977), a good portion of the land south of Avenue K-8, between 25th Street West and 20th Street East, experienced noise levels of 65-70 CNEL. This is in contrast to the 1990 AICUZ study, which shows that the land south of Avenue K-8 between 25th Street West and 20th Street East is subjected to noise levels in excess of 65 CNEL. The most recent AICUZ study for Air Force Plant 42 depicts the 65 CNEL line as almost one mile to the south of Avenue K, extending west to approximately 25th Street West and east to 40th Street East, before dropping to Avenue M.

A comparison of the noise contours from these two studies yields results contrary to local perceptions about Plant 42. The 1990 AICUZ study seems to indicate that noise contours have actually moved closer to the plant, decreasing the area of land that is impacted by potentially harmful noise levels. However, since these contours are based on present activity, any significant increase in air flights could cause these contours to move northward again, toward Avenue K.

The primary conflict between city and military plant concerns will be encroachment of urban land uses into existing or potential noise corridors. Although the final decision to approve land uses around these bases rests with the City, it must be remembered that a significant portion of the local economy and housing directly and indirectly benefits from the activities at these bases. Therefore, reaching a compatible balance between military and other land use needs is essential for the continued economic health of the area.

c. Plant 42/Palmdale Regional Airport

The proposed construction of a major regional or international airport at Palmdale is an important element in forecasting future land use patterns for the Lancaster/Palmdale region. This airport will not only affect the noise environment along the proposed flight paths, but will restrict the types of uses which can be allowed in the Safety Hazard zones. Flight operations at the Palmdale airport may affect the noise environment within the City of Lancaster at some point in time. However, at present, there are no impacts expected over the next five years. At a point in time when major expansion is proposed, there will need to be an additional study to determine long-range noise impacts.

Plant 42 is currently getting final approval of an amended flight pattern study. Plant 42 officials fear that developing the east side of Lancaster south of Avenue K will lead to a number of complaints of noise.

Due to the potential for increased operations at both Plant 42 and the Palmdale Airport, the lands south of Avenue K, between 30th Street West to 100th Street East, must be carefully planned. Development could be encouraged in largely developed areas, such as near the Antelope Valley Freeway and Sierra Highway. Development east of 10th Street East (south of Avenue K) could emphasize lower density uses, either industrial or rural residential (less than 1 unit per acre). However, if it is determined that this area could support higher densities of development, commercial and low density residential uses could be concentrated along Avenue K, with light industrial or open space uses oriented toward the south. This will help maintain adequate buffering from airflight operations. In addition, all lands south of Avenue K, between 30th Street West and 100th Street East, could only allow construction that is consistent with the requirements of avigation easements. There is a concern, however, whether avigation easements will work, or if total land use control is necessary.

d. Palmdale International Airport

The Palmdale Regional Airport may eventually expand to become Palmdale International Airport, although this issue has been debated for almost 20 years. It is not expected, however, that such an expansion could occur until after the year 2010. If this occurs, it will necessitate a considerable expansion of support facilities and services adjacent to Plant 42, and could create additional 65 CNEL noise contours within the Lancaster study area and the need for additional safety corridors near 70th Street East and Avenue K.

e. Fox Field

While expansion plans for the William J. Fox Airport are modest at present, several large scale improvements are in the planning stages for the airport. They include a hotel near the entrance and several large aircraft facilities on the north side. The approach and clear zones for Fox Airfield, as delineated in the Master Plan (1984), indicate the desired aircraft operating space around the airport, which should not be penetrated by man-made or natural objects. The Master Plan depicts these imaginary surfaces as outlined as Part 77 of the Federal Aviation Regulations. The areas surrounding the airport are also prone to flooding, so comparatively low density land uses are appropriate in these areas. As long as the City maintains these types of land uses, especially northwest of 60th Street West and Avenue G (65 CNEL), they should be compatible with the planned airport activities for Fox Field.

It is advisable to have an updated noise study or general update to the Airport Master Plan prior to the approval of new development within two miles of the airport. Development within two miles of the airport could provide avigation easements to prevent future land use incompatibility.

E. HAZARDOUS MATERIALS

1. EXISTING SETTING

The accidental release of any harmful material is a potentially serious incident, which is addressed under the City's "Multihazard Functional Plan". This plan addresses hazardous material accidents based on State guidelines as developed by the State Office of Emergency Services (OES). In addition to the City's Multihazard Functional Plan, the State of California passed a law requiring each county in California to develop a method to deal with the management of hazardous waste. The purpose of the County Hazardous Waste Management Plan (CoHWMP) is to provide a more effective framework for managing the County's hazardous waste consistent with State law and requirements of the State Department of Health Services. To comply with this legislation, Lancaster passed an ordinance to establish procedures, standards, and criteria for the regulation of hazardous waste facilities.

a. Hazardous Materials

A hazardous material is defined as any injurious substance, including pesticides, herbicides, toxic metals and chemicals, volatile chemicals, explosives, and nuclear fuels and materials. The use of hazardous materials is commonplace in modern industrial and agricultural activities. Because these materials are increasingly used in urban and rural settings, and because they represent such a serious potential threat to human health and safety, strict laws and regulations have been developed to control their use, storage, disposal, and transport.

Hazardous materials can be classified into four general categories: explosives, flammables, irritants, and toxins. Explosives can produce rapid chemical reactions causing damage due to blast and flash fire. Flammables are dangerous because of their low ignition temperature and rapid burning characteristics. Some flammable materials burn so violently that they cannot be extinguished, and must be allowed to burn out naturally. Irritants can cause inflammation or destruction of living tissue with effects ranging from mild to severe, based on the degree of exposure and type of material involved. Toxins include various poisons which are harmful or fatal if swallowed, inhaled, or ingested through the skin. Because of their widespread use, many types of hazardous material are transported through, used, or stored, to some degree, within the City of Lancaster.

b. Transport of Hazardous Materials

The transport of hazardous materials by truck or rail is regulated by the United States Department of Transportation through National Safety Standards. The federal safety standards are also included in the California Administrative Code, Environmental Health Division. The California Health Department regulates industrial hazardous waste haulers only. Figure III-E-1 shows the location of major hazardous waste routes within the study area.

(1) Road Transport

The major transportation arteries within the study area are State Route 14 and Highway 138. State Route 14 is a route designated by the Highway Patrol for explosive transport. Highway 138 is utilized for transporting toxic explosive rocket fuel to Vandenberg Air Force Base.

The California Highway Patrol (CHP) is responsible for the general enforcement of motor carriers hauling hazardous wastes. Three basic methods of enforcement are employed, as follows:

- Truck scales issue "compliance ratings", which monitor maintenance, vehicle code, safety, and cargo compliance with federal, state and local laws. There are no truck scales within the study area. The nearest ones are located on Interstate 5;

- The CHP's Motor Carrier Safety Unit conducts inspections at "terminals," which are generally areas or yards where trucks are parked and/or operated from, for example, school bus terminals, truck stops/yards; and

- A "Mobile Road Enforcement Program" is employed, which utilizes two officers to patrol roadways with the authority to set up lane inspections on city and county roadways, as well as on state highways.

(2) Rail Transport

A variety of hazardous materials are also handled and transported by the Southern Pacific Railroad (SPRR), which is controlled by state and federal regulations. According to the City's Multihazard Functional Plan, hundreds of thousands of tons of hazardous materials are shipped by rail through the City each year. The railroad line is oriented in a north/south direction, and roughly bisects the City.

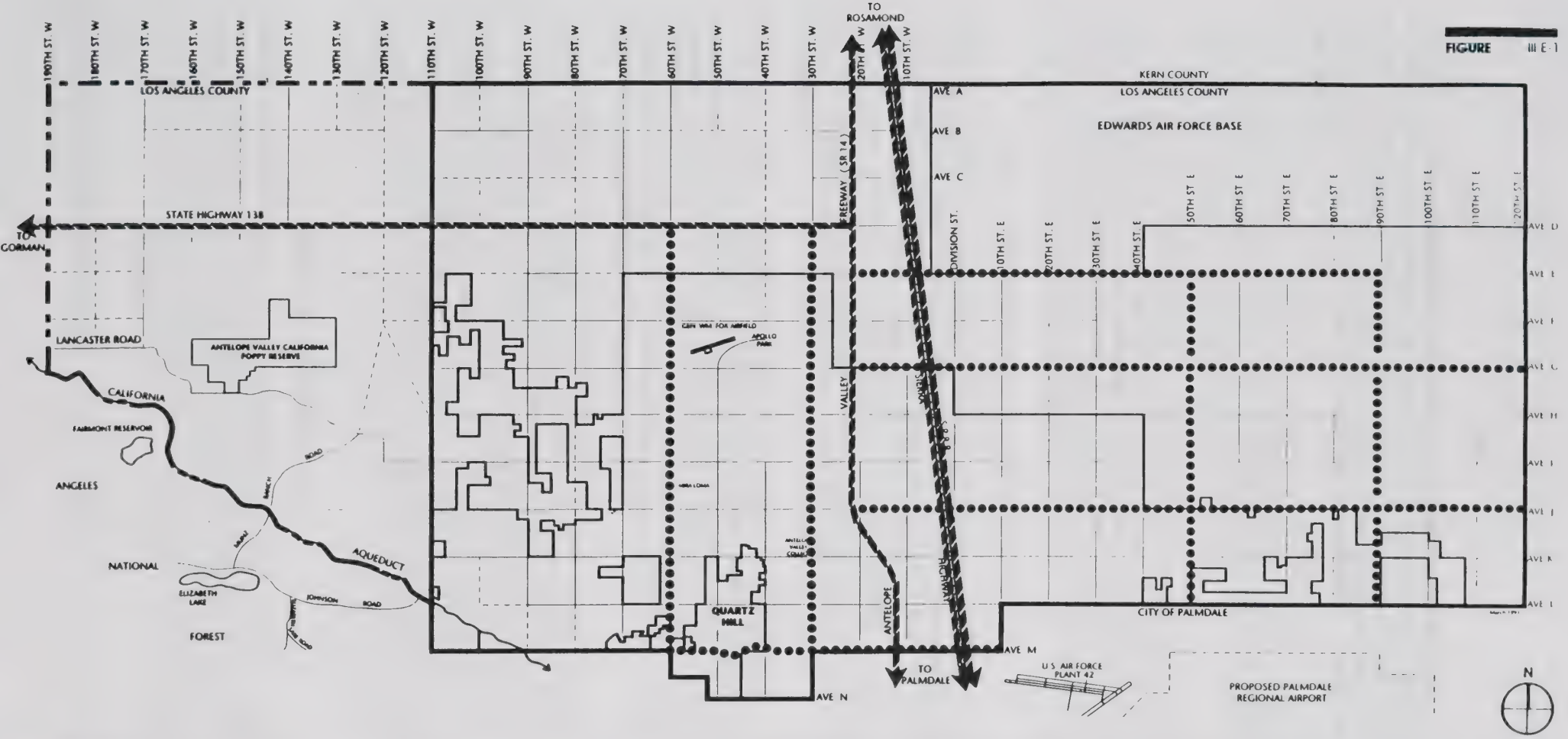
c. Airborne Dispersal

Both State Route 14 and Highway 138 carry extremely hazardous materials, including toxic, explosive rocket fuel. The SPRR line also carries dangerous materials, such as anhydrous ammonia and liquid chlorine. If an accident were to occur, liquid materials could spill from ruptured tanker train cars or trucks. Some of these materials would volatilize upon spilling into plumes of toxic gas. Since prevailing winds blow generally to the east, there would be a "drift zone" immediately east of Route 14 and the SPRR line.

Presently, no regulations exist that would prohibit houses and public buildings within "drift zones" located along hazardous material transport routes, or even any notification guidelines for local jurisdictions. This is due to the possibility that routes may change over time, and, as a result, liability concerns with building owners may arise. In addition, interstate routes are usually the only routes which must comply with hazardous material regulations (State Office of Emergency Services, 1990).

The lands east of these two routes include residential or public uses where large numbers of people could congregate. These uses would need time for warning and evacuation in the event of a major hazardous material spill, especially along the SPRR line. The Federal Department of Transportation suggests evacuation up to a half mile away from train car accidents involving the most serious types of hazardous materials (Department of Transportation 1980). Figure III-E-3 shows public facilities near hazardous materials transport routes.

FIGURE III E-1



HAZARDOUS MATERIALS TRANSPORT ROUTES

PLANNING NETWORK

- HAZARDOUS MATERIALS AND EXPLOSIVES ROUTE (City of Lancaster Multi-hazard Functional Plan)
- HAZARDOUS WASTE MAIN TRANSPORTATION CORRIDORS (Los Angeles County Hazardous Waste Management Plan)

NOTE: State Route 14 and State Highway

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In general, higher wind velocities, which the Antelope Valley experiences quite frequently, can quickly transport an airborne plume a considerable distance downwind, although its horizontal dispersal would be proportionally less. Conversely, low wind velocities disperse a plume more slowly and not as far downwind, but the horizontal dispersal would be proportionally greater (see Figure III-E-2).

Similar conditions exist along the Antelope Valley Freeway (Highway 138/State Route 14), although its potential drift zone is probably smaller than the railroad corridor. This is because the relative volume of materials carried by each tanker truck is significantly less than carried by rail cars.

Avenue D also has a potential hazardous material drift zone west of the Antelope Valley Freeway. This is the extension of Highway 138 which is also used to transport hazardous materials. Although the prevailing winds would initially disperse airborne materials directly east along the roadway, the risk of explosion would be greater along the freeway. This is due to the type of materials carried and the potential for vehicular accidents or fires.

d. Storage and Use of Hazardous Materials

The City of Lancaster is located in one of the fastest growing urban areas in the State of California. Much of this growth is attributable to residential development and associated service sector uses. Along with this growth, the potential for growth in hazardous materials storage and transportation also increases. Regulations and enforcement of safety measures for the storage and use of hazardous materials is the responsibility of many agencies, including local fire agencies. National, state, and local fire codes act as a guideline for local enforcement.

The Environmental Protection Agency (EPA) ensures that containers of hazardous materials are properly labeled with instructions for use. The California Department of Industrial Relations, Cal-OSHA Division, regulates the proper use of hazardous materials. The United States Department of Agriculture, California Department of Food and Agriculture, and the Department of Industrial Relations regulate pest control operations, pesticide dealers, and pesticide users to insure that hazardous agricultural chemicals are properly used.

The Los Angeles County Forest or Fire Warden Hazardous Materials Program maintains records on hazardous waste generators within the Antelope Valley. Table III-E-1 lists the major hazardous waste handlers within the Lancaster study area. The term "major" refers to those handlers that deal with 500 gallons of liquid material, 5,000 pounds of solid material, or 2,000 cubic feet of a gaseous material. It should be noted that, while most of these major handlers are located in the industrial lands south of downtown Lancaster, numerous firms throughout the City presently produce, transport, or utilize hazardous materials of lesser quantities on a daily basis. It is expected that small handlers will continue to be distributed throughout the City, and will likely become more widespread as the City develops.

e. Disposal of Hazardous Wastes

Currently, there are no active landfills operating in Los Angeles County which accept hazardous wastes. Hazardous wastes generated within the County, which are disposed of off-site, are transported to Kettleman Hills Landfill in Kern County and to Casmalia Landfill in Santa Barbara County. Both facilities are considered to be active "Class One" landfills, capable of handling all types of urban wastes, including toxic and hazardous materials (except explosives and radioactive materials).

f. Illegal Dumping

Much of the desert area is subject to infrequent, illegal dumping of hazardous materials, such as household and commercial wastes. In general, because of the extensive laws governing industrial wastes, local industrial wastes are disposed of properly. However, illegally dumped industrial and domestic wastes are occasionally found in the desert area. While it is believed that the majority of this illegal dumping is from sources in the Los Angeles Basin, there are undoubtedly local sources as well.

g. Response to Hazardous Materials Emergencies

The City of Lancaster has an adequate hazardous materials emergency response organization outlined in the "Multihazard Functional Plan," 1990. This plan addresses the City's planned response to extraordinary emergency situations. The plan outlines those individuals and agencies assigned emergency responsibility. Hazardous materials planning is multijurisdictional, and the majority of the response resources would come from the following agencies outside of the Antelope Valley:

- The Los Angeles County Fire Department's Hazardous Materials Response Team provides assistance for substance identification, tactical and technical decisions, notification to other agencies, and the establishment of a command post.
- The Los Angeles County Sheriff provides security, evacuation, and investigation activities, as well as the coordination of notification, evidence collection, and prosecution actions along with other agencies, in response to a hazardous materials situation.
- The Los Angeles County Department of Health Services provides an advisory staff to identify, assess, and control illegal disposal of hazardous waste and referral to appropriate prosecutorial agencies.
- The American Red Cross and local schools would coordinate the establishment of mass care shelters and feeding sites, and provide disaster relief services such as relocation assistance.

A hazardous material incident in conjunction with a major earthquake would preclude immediate response by some or all of these agencies due to damaged roads and more immediate emergencies.

Table III-E-1
Major[1] Hazardous Material Handlers In Lancaster, 1990

50th District Agricultural Association

Acme Rents
Antelope Valley Bus, Inc.
Antelope Valley Convalescent Hospital
Antelope Valley Hospital
Antelope Valley Nissan
Antelope Valley Pulmonary Care, Inc.
Antelope Valley Smog Station
Antelope Valley Sickroom Supply

Blumel-Martin Inc.
Buckner-Wilson Fabricators (now closed)

C & D Refrigeration Inc.
Calmat Co.

Dales's Hitchin' Station Inc.
Dave Reader Chevron
DRC Pump Systems, Inc.

Earl Scheib Paint Shop # 446

Gary Craig Chevron
George Hurd Const. Inc.

J. W. Butler Oil, Inc.
Johnson Auto Center

Kwik Oil

Lancaster Convalescent Hospital
Lancaster Community Hospital
Little Oil Co., Inc.
Los Angeles County Sanitation Districts

M-F Microfilm Services Inc.
Midas Muffler
Mission Linen Service

Nassco
NU-Ease Inc.

Pennzoil Products Company
Pioneer Honda-Isuzu
Petro Lock Inc.

Rally Chevrolet

Sears, Roebuck & Company # 2268
Shepherd Tractor
Sierra Toyota, Inc.
Southern California Gas Company
Sparkletts Drinking Water
Steven Construction Inc.
Suburban Propane

V. B. Anderson Company
Victor Ryckebosch, Inc.

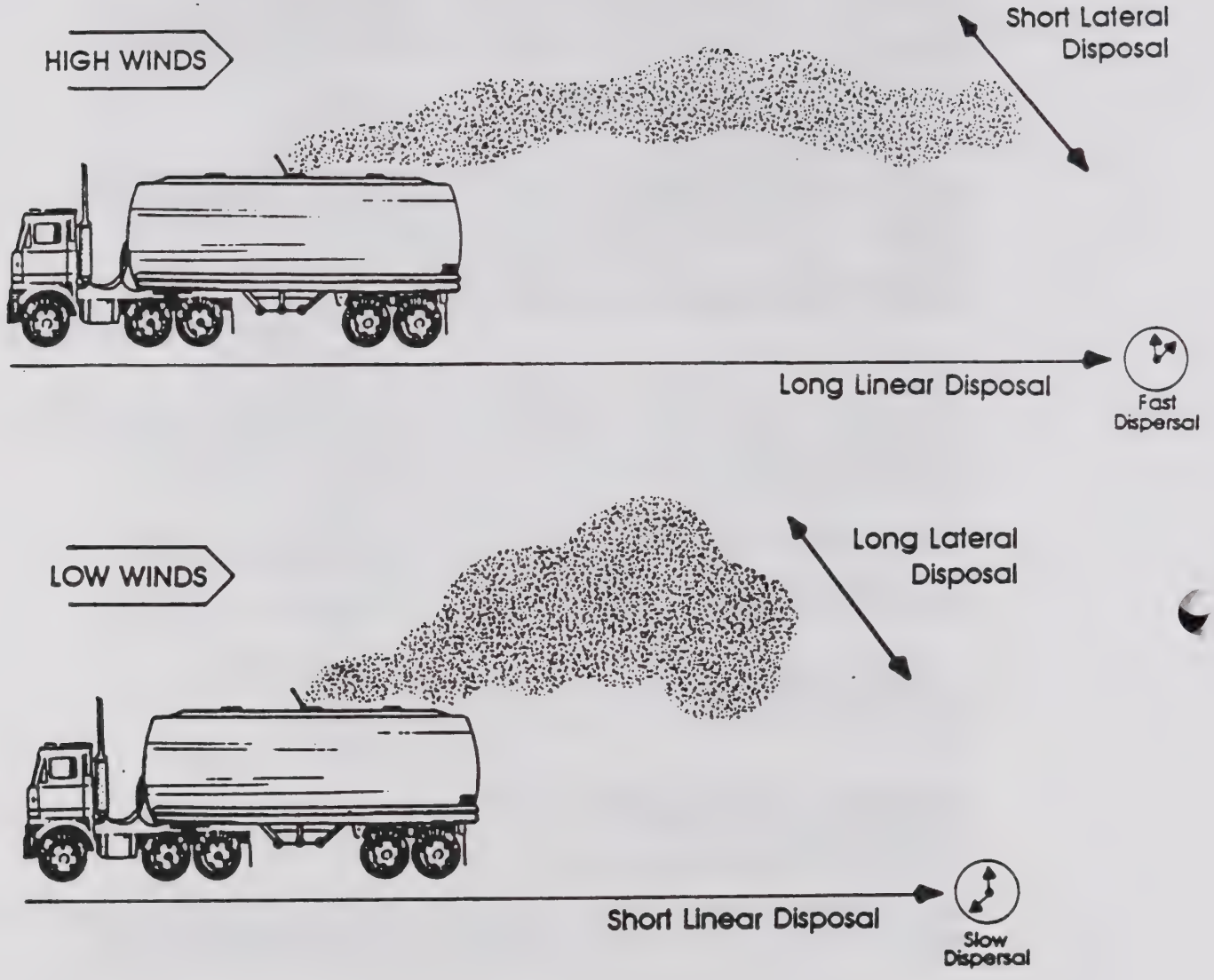
Western Star Propane, Inc.

Yentes Welding

Source: Los Angeles County Forest or Fire Warden Hazardous Materials Program, 1990.

1 "Major" is defined by the following criteria: the handler uses hazardous materials in amounts greater than the following quantities: 1) 500 gallons of a liquid substance; 2) 5,000 pounds of a solid substance; or 3) 2,000 cubic feet of a gaseous substance.

FIGURE III-E-2

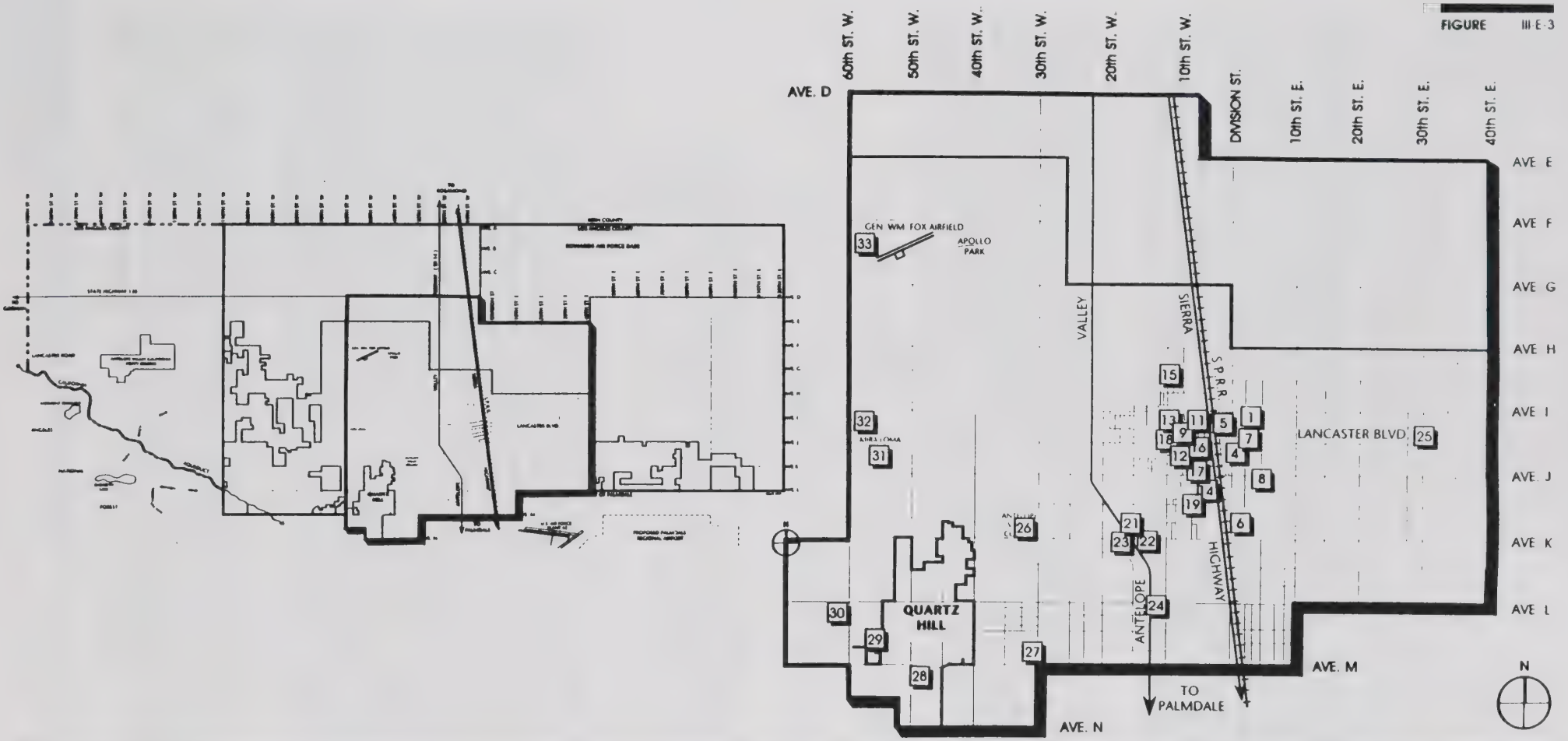


WIND DISPERSAL OF AIR-BORNE CONTAMINANTS

PLANNING NETWORK

CITY OF LANCASTER
GENERAL PLAN

FIGURE III E-3



PLANNING NETWORK

WITHIN 1/2 MILE EAST OF SOUTHERN PACIFIC RAILROAD TRACKS
1. Antelope Valley Fairgrounds
2. Antelope Valley Union High School
3. Desert Winds Continuation High School
4. Antelope Valley Adult/Individual Study School
5. Antelope Valley Union High School District Office
6. Joshua Elementary School
7. Sonoida Park
8. El Dorado Park

WITHIN 1/4 MILE WEST OF SOUTHERN PACIFIC RAILROAD TRACKS
9. Domenico School
10. Adventist School
11. Sacred Heart School
12. United States Post Office (Cedar Ave.)
13. Antelope Valley Senior Center
14. Jane Reynolds Park
15. Meadow Park
16. Municipal Museum/Art Gallery
17. Fire Station #33
18. Lancaster Elementary School District Office
19. Lancaster Christian School

WITHIN 1/2 MILE EAST OF ANTELOPE VALLEY FREEWAY (SR 14-138)
20. California Highway Patrol Office
21. Antelope Valley Hospital
22. Sunnydale Elementary School
23. Antelope Valley Center
24. Eastner Park Activity Center

WITHIN 1/2 MILE OF AVENUE J
25. Tierra Bonita Park/School

WITHIN 1/4 MILE WEST OF 30th St W
26. Antelope Valley College
27. Pasadena High School

WITHIN 1/2 MILE OF AVENUE M
28. Quartz Hill Elementary
29. Joe Walker Middle School

WITHIN 1/4 MILE WEST OF 60th St W
30. Quartz Hill High School

WITHIN 1/2 MILE EAST OF 60th St. W
31. Mira Loma Prison
32. High Desert Hospital
33. General WM Fox Airfield

SOURCE: Los Angeles County Fire Department, Chief Planner, Antelope Valley Station, 1990

PUBLIC FACILITIES NEAR HAZARDOUS MATERIALS ROUTES

CITY OF LANCASTER
GENERAL PLAN

2. ANALYSIS

a. Los Angeles Hazardous Waste Management Plan

Los Angeles County generates more hazardous waste than any other county in the State. Some of this waste is shipped untreated to distant disposal facilities in other counties and states. With continued Federal and State restrictions/regulations on waste management facilities, the County cannot continue to rely on distant disposal as its principal waste management method. Most of the waste can be treated and managed entirely within the County and efforts must continue for the County to assume its responsibility in managing its own waste for the future. To accomplish this, comprehensive planning is needed to control the consequences of hazardous waste management in Los Angeles County .

On November 30, 1989, the California Department of Health Services approved the Hazardous Waste Management Plan for the County of Los Angeles. The Los Angeles County Hazardous Waste Management Plan (CoHWMP) describes and defines existing conditions, future conditions, needed management facilities, and recommended action programs on a County-wide basis. Program goals and objectives are presented together with policy statements that show how to implement the Plan and provide guidance and means for achieving the goals and objectives. Cities are required to take one of the following actions:

- Incorporate applicable portions of the CoHWMP, by reference, into the City's General Plan; or
- Adopt a city hazardous waste management plan which is consistent with the CoHWMP; or
- Enact an ordinance which requires that all applicable zoning, subdivision, conditional use permit, and variance decisions are consistent with the applicable portions of the CoHWMP. This last action allows cities to adopt more stringent planning requirements and siting criteria for hazardous waste facilities in the City.

The City of Lancaster chose to develop an ordinance which would comply with the Los Angeles County Hazardous Waste Management Plan. The major emphasis of this Ordinance is to protect the public health, safety, and welfare of the residents of Lancaster against all types of perilous releases from any type of hazardous waste facility. The intent of the Ordinance is to allow the City greater local control by regulating hazardous waste facilities through the conditional use process. Review at the local level would allow the community greater protection from hazardous waste facility projects being sited and located under County guidelines which may not adequately address unique or specific circumstances within the City. The Ordinance amended the light manufacturing, and restricted heavy manufacturing zones by specifically prohibiting "Hazardous Waste Facilities" and "Specified Hazardous Waste Facilities" as uses allowed within these industrial designations, and designated general geographic areas within the City where the siting criteria may be met.

The conditional use permit provision of the City's Zoning Ordinance allows the City to review each application separately and place conditions on individual projects to ensure that the project is compatible with the General Plan, the Zoning Ordinance, and that it does not adversely affect neighboring land uses. A new section, Hazardous Waste Facilities, was added to the Zoning Ordinance in 1990, which established procedures, standards, and criteria for applicants to follow.

The permit process requires a detailed application, proper environmental assessment, and public hearings before both the Planning Commission and City Council. This ordinance will ensure that site development occurs in an orderly, safe, and environmentally sound manner. The requirements of this Ordinance are consistent with state law, as well as the regulations contained in the Los Angeles County Hazardous Waste Management Plan.

b. Multihazard Functional Plan

The City of Lancaster has developed a hazardous material mitigation program as part of its Multihazard Functional Plan. This plan should be updated on a regular basis to maintain an adequate level of preparedness and ability to respond to hazardous material incidents.

c. Illegal Dumping

The illegal dumping of hazardous wastes will continue to be a problem in the desert area and will likely increase as waste disposal regulations become more strict. As part of their response to the growing problem of hazardous materials, some cities have established telephone hotlines and offer rewards based on convictions of illegal dumpers. This program could be funded out of a surcharge on business licenses issued by the City, and by fines levied on convicted dumpers. This assessment could be applied to all new businesses, since most, if not all, firms produce, transport, or use hazardous materials of one kind or another.

d. Transportation Routes

At this point in time, there are few practical alternative routes for hazardous materials routing other than through the Lancaster study area. The SPRR line is the only main rail line through this area, just as Highway 14 is the only (direct) roadway link to the Los Angeles Basin. If alternative roads or freeway routes are developing to increase areas between the Antelope Valley and Los Angeles, they should be considered for use as hazardous material routes.

At present, the route proposed for an east-west freeway through the Antelope Valley by Caltrans lies along the Avenue D (State Highway 138) corridor. State Route 138 is already designed as a hazardous material transport route. Under the requirements of Ordinance 560, each applicant must submit, as part of the application process, a map of the proposed transportation routes. The City has the authority to restrict the routes and hours of transport through the conditional use permit process.

e. Household Hazardous Wastes

While there exist extensive laws and regulations related to industrial wastes, the disposal of household hazardous wastes is very difficult to regulate. The typical household over the course of a year will create small amounts of hazardous wastes, including paint cans, garden pesticide containers, and other similar materials. In general, these wastes are disposed of in normal household trash, and are thus hauled to landfills, which are not certified to accept hazardous wastes. While the amount of hazardous waste created by any individual household is small, the cumulative total of wastes created by the residential sector may be substantial. The provisions of the California Solid Waste Management Plan (AB 939) direct cities to implement measures for recycling of household hazardous waste in order to reduce the amount of these wastes being deposited in landfills and sewer systems. The City is currently developing programs that would establish methods of alternative collection and public education in order to comply with State law.

f. Land Planning

It would be difficult, if not impossible, to maintain lands adjacent to hazardous material routes completely clear of houses, businesses, and public buildings. Presently, there are no federal or state regulations concerning setbacks for houses, businesses, or public buildings from hazardous material routes. The main reason for this is because routes may change, and, as a result, liability problems with building owners may arise. Additionally, interstate routes are usually the only routes that qualify for hazardous material regulations (Mike Douglas, State Office of Emergency Services).

However, owners of structures along hazardous materials transportation routes should be aware of potential risks and plan accordingly. Where possible, low intensity uses such as open space, multi-use trails, or nurseries could be encouraged along these roadways. Care should also be exercised to preclude or carefully regulate structures that might concentrate potentially dangerous gases, either natural or man-made.

Since the northern boundary of the original California Springs proposal project was approximately Avenue B-4, it will be critical to establish mitigation measures to protect the residents of the area from possible hazardous materials during transport.

g. Community Information

The City may wish to develop a community information program on hazardous materials. The City could provide information to residents and employers living and working near hazardous materials transport routes, so they could learn about the potential risks of spills and the need to develop contingency and evacuation plans.

h. Emergency Planning

The City might also choose to work directly with residents and employers along major hazardous material transport routes to develop evacuation plans. Uses along both roadways (SR 14 and Highway 138) and the rail lines should be specifically targeted. The City would need to consider the time needed for evacuation, the likelihood of a major incident, and the relative safety provided by such plans when determining what areas to notify and/or work with in developing plans.

Facilities where the public congregates, such as churches, schools, restaurants, etc., that are within a half mile of these major routes should be notified as to the potential risks due to hazardous material spills. In particular, the City should work with the Antelope Valley Union High School District to plan evacuation of the Antelope Valley High School. This site is located 3,000 feet east of the SPRR line and can have up to 3,000 high school students during a typical school day. Table III-E-2 lists the public facilities within a half mile east of the SPRR route and within a quarter mile west of the line, while Figure III-E-3 shows the exact locations of these facilities. In addition, it lists the facilities within a quarter mile of the Antelope Valley Freeway (14/138) and Avenue D (Highway 138). Land uses within these corridors would have the highest risk associated with transport-related hazardous waste incidents.

i. Waste Facility Siting

According to recent changes in State law, local jurisdictions must now identify potential sites for waste handling facilities. However, the siting and operation of regional hazardous waste facilities are still subject to State review and regulations, which can preempt local land use plans.

The City's hazardous waste section of the zoning ordinance allows the City greater control from Hazardous Waste facilities being sited under the Los Angeles County guidelines which may not adequately address unique or specific circumstances within the City. The Ordinance establishes siting criteria for the development of hazardous waste facilities, and designates general geographic areas that could be developed for hazardous waste facilities. Under the provisions of the Ordinance, hazardous waste facilities are subject to a comprehensive application, a conditional use process, which includes additional review by local agencies, and public hearings before the Planning Commission and City Council. The City Council may impose, as necessary, conditions and standards beyond those presented in the staff report to protect the environment and public health, safety and general welfare.

Table III-E-2
Public Facilities Near Hazardous Material Transport Routes

Hazmat Route	Direction	Facility
Southern Pacific Railroad Line	East (within 1/2 mile)	Antelope Valley Fairgrounds Antelope Valley Union High School Desert Winds Continuation H.S. Antelope Valley U.H.S. District Office Joshua Elementary School
	West (within 1/4 mile)	Domenico School Adventist School Sacred Heart School Cedar Avenue Post Office Antelope Valley Health Center Museum Art Gallery Fire Gallery Lancaster Elementary School District Office Lancaster Christian School
Antelope Valley Freeway (14/138)	East (within 1/2 mile)	California Highway Patrol Office Kleiner City Park - Activity Center Antelope Valley Hospital Sunnydale Elementary School
	West	No facilities within 1/4 mile
Avenue D	North/South	No facilities within 1/4 mile

Source: Planning Network

F. CRIME AND PREVENTION SERVICES

1. EXISTING SETTING

a. Protective Services

Police protection and crime prevention services for the City of Lancaster are provided on a contractual basis by the Los Angeles County Sheriff's Department. The Antelope Valley region is served by the Antelope Valley Station, which is headquartered at 10th Street West and Avenue J near downtown Lancaster. While law enforcement services for the surrounding unincorporated areas are provided by the Antelope Valley Sheriff's Station, the City's contract only covers lands within the City of Lancaster. Presently, the Sheriff's Antelope Valley station also serves the City of Palmdale.

While all aspects of prospective services are offered within these districts, the Antelope Valley Sheriff's Station does not provide traffic enforcement to the surrounding unincorporated areas. The California Highway Patrol serves the unincorporated areas with traffic enforcement.

By contracting for law enforcement, the City of Lancaster receives comprehensive services, including patrol and traffic law enforcement, detective, and support services. Both costs and quality of service were considered in determining that a contract with the County was the most cost-effective and responsible solution to providing law enforcement in Lancaster, based on its present population and historical levels of crime.

Currently, the Antelope Valley Station serves an area of 1,284 square miles, with a population of about 220,000 people. Station personnel presently includes 218 sworn officers (206 are assigned and 12 are on permanent disability). The County budget allows for up to 227 personnel, with a present staff of 218 sworn officers. This level includes one (1) Captain, seven (7) Lieutenants, 23 Sergeants, 174 Deputies, and 13 Civilian Community Service Officers. The Station is currently assigned 64 vehicles. These include patrol cars, unmarked patrol cars, Jeeps, rescue vehicles, Community Services Officer vehicles, and a mobile command post. A helicopter is also assigned to the Antelope Valley Station.

With the growing population and criminal activity, there has been, and will continue to be, a need for additional officers. To serve the increasing population in the study area, additional sworn personnel are assigned to activity areas within police beats when the need arises. Activity areas are defined according to levels of criminal activity. This type of measurement is used, as opposed to quantifiable figures, such as officers per thousand residents, to more accurately reflect levels of service. For example, when the number of sworn officers per residents is used, there is no differentiation between active police officers patrolling and administrative, or in-active, personnel. In urban areas level of service is equal to 24-hour patrolling, while for rural areas demand-response is adequate.

To provide the flexibility needed in a growing community, the contract with the Los Angeles County Sheriff's Department allows for annual renegotiation. The Antelope Valley Station submits a recommendation to the Los Angeles County Sheriff's Department for providing additional officers to the service area. Cost of

the contract for 1991-92 has been adopted for $8.3 million, which represents a 10.8 percent increase from the previous 1990-91 contract. This increase represents added patrol and traffic coverage and support of other directed services and programs, such as Neighborhood and Business Watch, Rape Prevention, and Anti-Drug, Gang, and Alcohol programs for elementary students.

The local County Sheriff's Station has one full time crime prevention deputy for the Cities of Lancaster and Palmdale. The City also has one special assignment officer that handles crime prevention activities on a part time basis. These services include, but are not limited to, Neighborhood Watch, Business Alert, and providing deputies to speak at public and private functions.

Of the total resources at the Antelope Valley Sheriff Station, approximately 75 percent are committed to the Cities of Lancaster and Palmdale. Of that 75 percent, approximately 55 percent are committed to the City of Lancaster.

The Sheriff's Department deploys its officers in three main shifts: 12:00 midnight to 8:00 AM, 8:00 AM to 4:00 PM, and 4:00 PM to 12:00 PM. There are also interim shifts, deployed at different times throughout the day and night.

The City of Lancaster is divided into four (4) patrol areas or "beats" for both criminal and traffic enforcement. One traffic and one criminal enforcement car is assigned to each beat.

Response times to locations in the City of Lancaster vary, depending on the time of day and traffic conditions. The average response time for non-emergency calls to the downtown area is 4 to 5 minutes. Response times to the outlying portions of the study area range from 9 to 14 minutes. According to the Antelope Valley Sheriff's Station, these response times are presently considered adequate for the Lancaster study area.

b. Local Crime

The City of Lancaster is segmented into 20 reporting districts for statistical purposes. The most recent crime statistics for the City and its study area are presented in Table III-F-1 and are for fiscal year 1989-1990.

In general, criminal acts committed in Lancaster are aimed at property, rather than at persons. According to these statistics, larceny/theft is the most common serious crime in Lancaster. In the 20 reporting districts, approximately 2,400 larceny/theft crimes were reported. A total of 4,491 actual crimes were committed against property during fiscal year 1989/1990.

Crimes against persons in Lancaster were significantly lower than those experienced in other cities in Los Angeles County. Although crimes such as rape and assault have increased by 20 percent and 33 percent, respectively, between 1989 and 1990, other types of crime such as, robbery have declined during the same period.

Although crime has increased in general during the 1980's due to the tremendous growth in population, the crime rate in Lancaster is still much lower than it is in other cities in Los Angeles County. According to the Antelope Valley Sheriff's Office, the total crime rate actually declined by 13 percent during the 1989-1990 time period. The overall crime rate in the Antelope Valley area has experienced a 15 percent decline in the same time period.

Table III-F-1
Local Criminal Activity[1]
Fiscal Year 1989 - 1990

	Actual Incidents	% of Total
Crimes Against Persons	1,091	9%
Homicides, robbery, rape, assault, sex, other.		
Crime Against Property	4,491	40%
Burglary, arson, theft, grand theft auto, checks, malicious mischief, other.		
Miscellaneous Crimes	5,746	51%
Vice/narcotics, weapons, escape, disturbing the peace, drunk in public, drunk driving, prowling, vice/narcotics, other.		
Total Criminal Activity	11,328	100%

Source: "Summary and Criminal Activity", Antelope Valley Sheriff's Station, 1989-1990.

1 Within the City limits only.

2. ANALYSIS

a. Service Levels

Future development and population growth within the Lancaster study area will require additional police services to maintain the urban and rural level of service consistent with criminal activity. For rural areas, additional call-response levels of service will be required. The addition of approved urban residential developments several miles east and west of the urban core will necessitate the assignment of officers specifically to these areas. Although these projects will be surrounded by rural land uses, police protection will be expected to be provided at urban levels. The resources for this may be achieved through the Urban Structures Program (see the Physical Development Chapter of the State of the City Report).

The City will need to work cooperatively with the County Sheriffs' Department to assure that planned growth takes into account the need for, and the needs of, protective services. The Sheriff's Department is in the process of building an additional Station in Palmdale. When completed, the existing Antelope Valley Sheriff's Station will focus service on the City of Lancaster and the northern portion of the Antelope Valley. As the City continues to grow, additional facilities may be needed within the study area. However, by instituting appropriate building standards, design features, and safety equipment, the City can help reduce opportunities for crime.

b. Design Measures for Crime Prevention

The General Plan can present opportunities to discourage burglaries and other crimes through strategic use of design features. Since burglary is more often a crime of opportunity than a premeditated crime, community design features can often be implemented to reduce crime incidents. This is commonly referred to as the "defensible space" concept. Defensible space permits the identification of suspicious happenings or persons (in part by increasing visibility and recognition by neighbors) and makes it evident to a potential criminal that a crime could be observed and the criminal easily apprehended.

Design features for the creation of defensible space which may be appropriate in the General Plan include the following:

- well lighted and visible streets, street names, entrances, and house numbers;
- avoidance of "flag lots", where possible (flag lots have access to streets by a strip of land, and dwellings cannot be seen from street, making it easy to commit undetected crimes);
- well lighted and windowed apartment stairwells where possible;
- limitation of access into and between buildings, so escape routes are fewer and undetected entrance is more difficult;
- a visually well defined separation between public and private areas;
- placement of windows to allow easy resident surveillance of yards, corridors, entrances, parking areas, streets, and other public and semi-public places;
- landscaping which permits surveillance of open areas and entryways, and does not create places for concealment;
- location of kitchen and living areas to facilitate surveillance; and
- elimination of undefined hallways, particularly double loaded corridors shared by large numbers of families. Entries and circulation corridors should be designed so that as few families as possible share a common lobby, facilitating the recognition of strangers.

Similar defensible space techniques and other security precautions have been defined for other types of uses. For commercial and industrial buildings, the following design principles can be applied to discourage crimes, particularly burglaries:

- landscaping, location of buildings and walls, etc. should facilitate surveillance from the street and from neighboring structures, and should not provide places for concealment;
- the street system should allow emergency vehicle access fully around buildings to the extent possible;
- parking and walkways should be located where surveillance from streets or an attendant is possible to reduce worker or customer isolation when walking to and from cars;
- access to buildings or building groups and access between buildings should be eliminated or avoided;
- first floor windows should be kept to a minimum, made burglar resistant, and/or placed so as to promote surveillance from adjacent streets;
- where possible, areas should be designed so that they can be sealed off when not in use;
- alarm systems should be installed on a zone basis, so that the entire area does not need to be sealed off in an emergency; and
- street names and building numbers should be well lit for easy identification.

The following design features can be utilized to reduce crime in recreational areas:

- good lighting;
- design which facilitates surveillance from streets and nearby buildings; and
- location of park buildings and high use activities near streets.

Table III-F-2 summarizes the lighting standards recommended by urban planning professionals to accomplish good lighting that is a key ingredient of defensible space.

In addition to the previous design measures aimed at creating defensible developments, road improvements can be made that may reduce the number of hazardous, non-hazardous, and parking violations that occur within the City. Uniform road widths and signalized intersections can minimize the potential for moving violations. Furthermore, provision of adequate off-street parking in commercial areas and near public facilities can minimize parking violations

Table III-F-2
Recommended Lighting Levels[1]

Lighted Area	Commercial	Industrial	Residential
Pedestrian Areas			
Sidewalks	0.9	0.6	0.2
Pedestrian Ways	2.0	1.0	0.5
Roadways			
Freeways	0.6	0.6	0.6
Major Roads/Expressways	2.0	1.4	1.0
Collectors	1.2	0.9	0.6
Local Streets	0.9	0.6	0.4
Alleys	0.6	0.4	0.2
Parking Areas			
Self Parking	1.0	NA	NA
Attendant Parking	2.0	NA	NA

Source: Urban Planning and Design Criteria, 1982.

1 Minimum footcandles at pavement.

c. City Police Force

It is commonly assumed that as a city reaches some threshold population, it becomes cost effective to establish its own police force. Lancaster may wish to prepare a study to determine at what size it could successfully support its own police force. However, the trend within the Los Angeles County Sheriff's Department service area has been the opposite. Since 1970 almost a dozen cities have abolished their own police forces in favor of contracting with the Sheriffs Department, most of these coming after the passage of Proposition 13. It is anticipated that present fiscal constraints could accelerate this trend. Typical cost estimates show that City police forces generally operate at $140 - $180 per capita, while the County can operate its Sheriffs Department at approximately $70 per capita. Regardless of what authority provides protection services, a plan for possible locations for additional substation(s) will be necessary as the population continues to grow.

G. FIRE HAZARDS AND PREVENTION SERVICES

1. EXISTING SETTING

a. Protection Services

The Los Angeles County Fire Department (LACFD) provides fire protection services to the entire Antelope Valley, including the Lancaster General Plan study area. The LACFD was formed to provide both wildland and structural fire protection. The City of Lancaster, as a member of the consolidated Fire Protection District, contracts with the County of Los Angeles for the same level of staffing and protection normally provided to other unincorporated areas with some development.

Local fire authorities in Lancaster set fire flow standards, such as gallons per minute (gpm), and duration of water flows. These requirements are based on various state building, fire, life and safety codes, among others. Builders must meet these requirements and coordinate with the independent retail water agency supplying water to new developments.

Lancaster is presently served by 22 firefighters at any given time in five fire stations. An additional station is planned to open in the near future. Figure III-G-1 identifies the location of stations within the study area. The staffing and facilities of these stations are as follows:

Station 33 is located at 44806 Cedar Avenue, between Lancaster Boulevard and Avenue J. This centrally located station is the primary base station, which houses the Battalion Chief. A new station (#130) is temporarily housed in Station 33 until its building is constructed on Newgrove, north of Avenue J. Station 130 will have a class "A" pumper and be staffed with four firefighters per shift. Station 33 is staffed by ten firefighters per shift. Two of the ten firefighters currently assigned to Station 33 serve as a Paramedic Squad. Station No. 33 is equipped with one Class "A" pumper, one 1,000 gallon water tender, one utility pick-up for supplies, one paramedic rescue squad, one battalion chief vehicle, and one "Jaws of Life" extraction tool.

Station 84, serving the Quartz Hill area, is located at 5030 West Avenue L-12, between Avenue L and Avenue M. The station is staffed by five firefighters per shift. Two of the five firefighters serve as a Paramedic Squad. Three volunteer squad members supplement this staffing. The station houses one Class "A" pumper, one patrol vehicle, and a rescue squad. The patrol has a 100 gallon tank with a pump and hose for fighting brush fires.

Station 117 is located at 44851 30th Street East, between Avenue I and Lancaster Boulevard. This station is staffed by four firefighters per shift. Ten volunteer firefighters assist the staffing as needed. This station is equipped with two Class "A" pumpers.

Station 129 is located on Avenue M between the Sierra Highway and 10th Street West. The station is staffed by three firefighters per shift. The station houses one Class "A" pumper.

Station 112, located on Avenue E-12 and 87th Street West, houses a volunteer fire company which serves the Antelope Acres area. There are approximately eight to twelve volunteer firefighters that may respond to calls. As it is a volunteer company, it is uncertain how many firefighters will respond to any given call. For this reason, the Los Angeles Fire Department will also respond to any calls in Antelope Acres. The station is housed in a garage, and is equipped with one fire engine.

There are also 13 volunteers available to supplement the professional firefighter positions. All Lancaster volunteers are paid-call firefighters; that is, the LACFD pays them on a response basis for firefighting services. This system has demonstrated better volunteer participation than unpaid volunteer programs. Volunteers, however, are not paid for time devoted to training and public service.

In addition to staffing and equipment, fire flow and water supply capabilities are key factors in providing adequate service. Captain Ron Hayton, of the Los Angeles County Fire Prevention Bureau, has indicated that the City of Lancaster presently has adequate fire flows and water supply capabilities. However, most outlying areas have limited facilities to combat fires and emergencies.

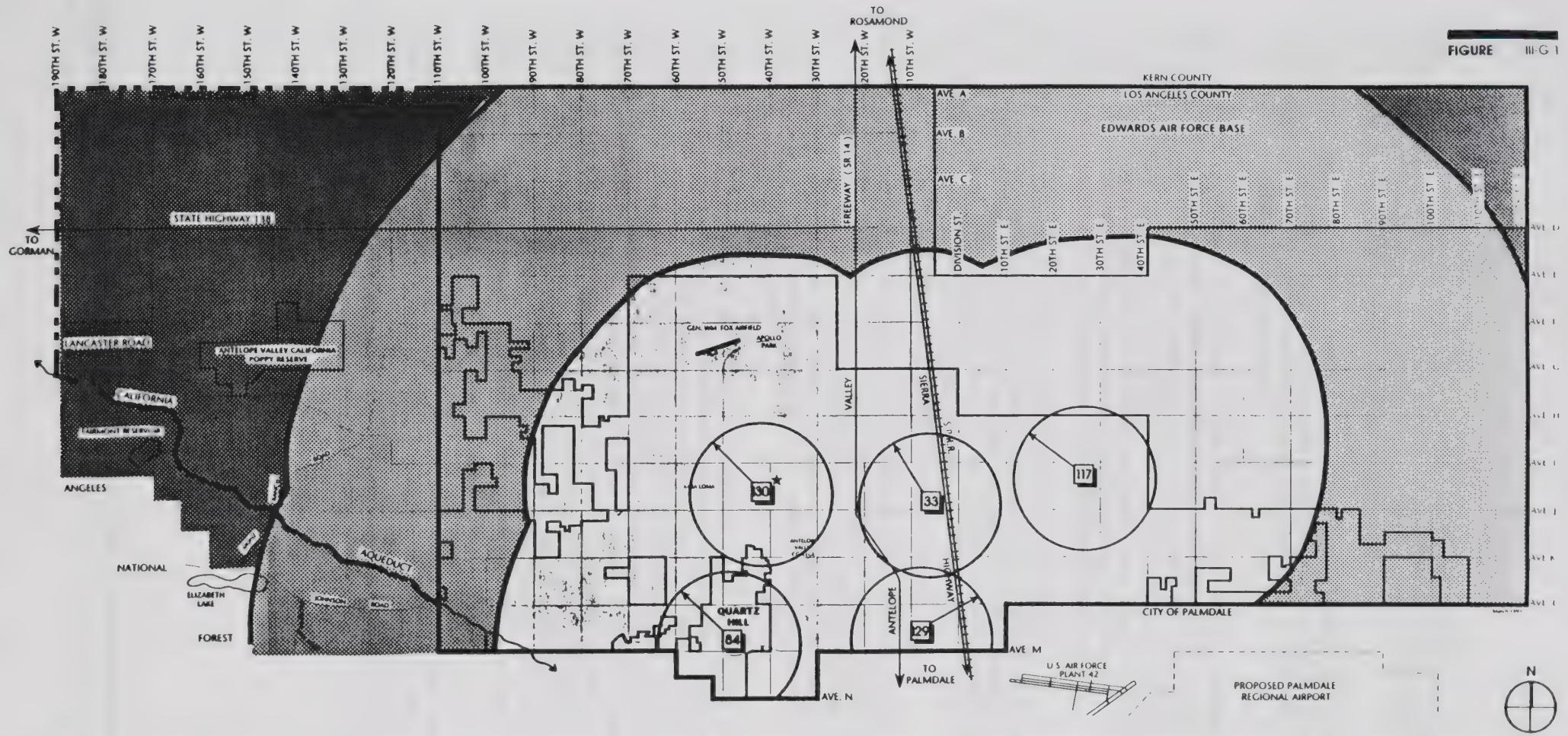
b. Fire Threat

The City of Lancaster and its study area contain various materials, both natural and man-made, that are susceptible to damage or destruction by fire. Most of the desert scrub vegetation throughout the study area basin has a fairly low level of combustion due to the type and spacing of plants. Upland slopes in the western and southwestern portions of the study area are moderately susceptible to combustion. These areas support sage scrub and chaparral vegetation which have actually evolved to require occasional burning: Plant communities that demonstrate this characteristic are called "fire periodic". One area that represents more than a minor fire hazard is Quartz Hill and its southern slopes. The development of the hill in Quartz Hill with large lot custom homes may increase this fire danger.

The original California Springs proposal would increase the fire potential at the Joshua Tree Woodlands, located on and adjacent to the proposed Industrial Park West. The increase in activities and influences of nearby human activities could create the potential for wildfires. The proposed project could also pose an adverse fire hazard to the State Poppy Reserve, as the proposed Lakeside Village would abut the Reserve on two sides.

Man-made structures within the study area can be threatened by fire, depending on their use, construction, and condition. Buildings that present more than a normal level of threat from fire are generally older wood frame structures, especially if they are abandoned or in a state of disrepair. Within the study area, the most fire prone buildings are older single family or multiple family structures. Another factor that increases the risk of fire is the use of older single family homes for commercial uses, especially those that utilize combustible materials (paints, solvents, fuels, etc.). Specific building characteristics that increase the risk of fire include open stairwells; lack of firewalls or fire doors; no sprinkler systems in non-residential buildings; worn or substandard electrical wiring; flammable furniture and furnishings; older air conditioning; heating, and ventilating systems. In addition, unsafe practices, such as inappropriate storage of flammable materials, also contribute to the threat of fire.

FIGURE III-G 1



PLANNING NETWORK

- URBAN SERVICE AREA (Up to 1.5 mile radius)
- AREAS WITHIN A FIVE MILE RADIUS
- AREAS BEYOND FIVE MILE RADIUS
- LOS ANGELES COUNTY FIRE DEPARTMENT STATION
- AREAS BEYOND TEN MILE RADIUS

★ Station 130 is temporarily housed with station 33 until its building is constructed.

SOURCE: Los Angeles County Fire Department, Chief Provost, Antelope Valley Station, 1990.

LOCAL FIRE STATIONS AND SERVICE AREAS

CITY OF LANCASTER GENERAL PLAN

While individual "fire prone" buildings represent a potential safety hazard, groupings of these buildings represent a more serious threat to public safety. This is because their burning could produce a large, intense urban fire that could, in turn, threaten nearby (normally safe) structures.

The most common type of urban structural fire occurs in single family dwellings. These fires are primarily caused by unsafe practices, such as smoking in bed or falling asleep while smoking, kitchen fires from the ignition of cooking oil, or children playing with matches or fireworks.

Non-residential uses such as stores, offices, and industries, also represent potential fire threats, especially when they store or utilize flammable or explosive materials. Facilities that handle hazardous, toxic, or explosive materials on a regular basis, such as paint stores and some of the local aerospace industries, could represent serious potential fire threats if accidents were to occur at these facilities. In addition, aircraft crashes or accidents, such as an explosion of jet fuel during transport on a public road, represent additional potential fire hazards.

Public facilities, such as churches, schools, theaters, restaurants, etc., are a special category of fire threatened structures. Due to the nature of their use, fires at these locations could threaten large numbers of persons. But, because of their use, these types of facilities generally have more stringent fire safety requirements. However, unsafe practices, disrepair, or vandalism (arson) can still produce a considerable threat, even to well-designed structures.

The interrelationship between urban and undeveloped areas is also important in determining overall fire danger. Since the desert plant communities have fairly low combustibility, it is unlikely that a major firestorm would proceed through the valley floor and threaten urbanized areas. Some increased risk may be found where urban or rural development is adjacent to Joshua Tree Woodlands, or during times of high wind conditions.

Extreme wind conditions and wildfires have resulted in the loss of life and property in the Lancaster study area. Generally, winds in the Antelope Valley are from the south and southwest with an average speed of 13 miles an hour. However, Santa Ana wind conditions are a reversal of the normal winds and occur in late summer and early fall. These warm, dry winds flow from the higher desert elevations and travel through mountain passes and canyons. As a result, wind velocities can reach 90 to 100 miles an hour in the mouths of canyons, dissipating as they spread across the valley floor. The Santa Ana winds generally coincide with dry periods, exacerbate already dry vegetation and make the Antelope Valley especially susceptible to fires. Once a fire has begun, these high winds aggravate existing fires, not only by spreading the fire quicker, but by blowing hot embers to homes and nearby locations, causing spot fires.

The open land surrounding the proposed California Springs development could serve as an effective fuelbreak and would deter potential wildfires from reaching the project site. A fuelbreak is an area, usually a long strip of land, where vegetative fuels are reduced in volume and maintained so as to produce a reduction of fire intensity if a wildfire burns into it.

c. ISO Ratings

The Insurance Service Organization (ISO) is a private insurance research group that periodically assesses the degree to which fire threatens geographic areas. This rating is based on the type of vegetation or structures present, climate, and the availability of fire protection services. The ISO uses a scale of I (best protection or lowest threat) to X (least protection or higher threat). At present, the City of Lancaster has an ISO rating of IV-IX, depending upon location. Areas within the City within five miles of a fire station and within 1,000 feet of a fire hydrant have adequate protection for suburban areas (ISO V or better), while areas outside of this five mile limit or beyond 1,000 feet from a hydrant, have an unacceptable ISO rating of IX. Some portions of the far eastern and western study area are more than ten miles from an existing fire station, and thus have an ISO rating of X (the poorest rating). This also includes the Poppy Preserve area.

The ISO also rates fire departments on the same scale according to their ability to provide the protection. At present, the Los Angeles County Fire Department (LACFD) has an ISO rating of III/IX, which is considered good for urban areas. However, the dual rating means that, similar to the ISO geographic ratings, the LACFD can provide adequate service within five miles of its stations and where fires are within 1,000 feet of an hydrant. Figure III-G-1 shows the ISO ratings within the study area in relation to the typical urban service level distance (radius 1.5 miles), as desired by the LACFD (Chief Provost).

Due to staffing, personnel, and facility limits, the LACFD cannot, at this time, provide suburban level fire service to the outlying areas of the study area. However, until these areas develop to suburban/urban intensities, this level of protection is not needed.

2. ANALYSIS

The Los Angeles County Fire Department (LACFD) attempts to maintain a maximum five minute response time to urban and suburban areas. To this end, the LACFD plans to locate fire stations with a urban/suburban service area radius of 1.5 miles.

A service area of this size can accommodate the fire protection needs of approximately 7,000 dwelling units in an urban area. Based on the present household size, each LACFD fire station is planned to serve approximately 20,000 residents.

If the City reaches its projected 2010 population of 234,228 residents, the LACFD would need to build an additional seven stations, based on a service population of 20,000 residents. Buildout of the rest of the study area would require an additional five stations, or a total of twelve (12) new stations. However, based on maintaining a service area for each station of 1.5 miles (radius), the entire study area could require as many as 25 additional stations (versus 12 based on population). The ultimate number and location of stations will depend on how the City and study area buildout, (i.e. where land uses are located, and to what density they are built). The LACFD also tries to plan one headquarters station for each six to eight engine companies.

Fire protection and paramedic services is provided to the area west of 110th Street West by Los Angeles County Fire Department's Fire Station #78, located at 1702 Elizabeth Lake Road, Palmdale. Station #78 is located 11.6 miles from the proposed California Springs project site, and is staffed with three firefighters. Portions of this area do not lie within the Consolidated Fire Protection District of Los Angeles County, and would not be served by the Fire Department unless annexed. The present response time to the California Springs area is 19.7 minutes. Although there is no standard response time by the County of Los Angeles Fire Department, this response time is considered unsatisfactory. Thus, future development in this unincorporated area will require the construction of new fire station(s).

The City presently maintains a staffing ratio of one (1) fire fighter for approximately 5,000 residents. Based on ultimate buildout, the study area could eventually require an additional 49 firefighters. This equals approximately five (5) firefighters per station (total twelve stations), which makes up one engine company.

At present, it costs the County approximately $1 million to construct a new, single-engine company fire house, not including land costs. It costs an additional $1 million annually to equip, staff, and operate such a facility. If development of the study area requires twelve new fire stations (at a minimum), and two additional headquarters stations, the County would incur a capital cost of at least $12 million, not including land costs. It will also incur an increased operating costs of at least $11 million each year by the Year 2010.

At some threshold population, it may be more cost effective for the City to provide its own fire protection service, as opposed to contracting with the County. This approach is often attractive for cities that wish to establish or maintain their own identity, separate from the County, and to exert local control over fire service. However, historical trends within the LACFD service area indicate that the opposite is more prevalent. Over the past twenty years, almost a dozen jurisdictions that previously operated their own fire departments began contracting fire services from the County and abolished their own fire departments. The biggest reason for this conversion is simple economics; use of the larger LACFD allows greater economies of scale (i.e. less expensive), while maintaining service levels. It has become increasingly expensive for small cities, and even large cities, to purchase and maintain the equipment and personnel needed to provide adequate fire service. It is generally two to three times cheaper to utilize LACFD services compared to a City operating its own service. The only instance where this ratio would not hold would be isolated areas with no adjacent County fire services. However, it would probably still be cheaper to utilize County services as opposed to establishing a separate City service.

H. EMERGENCY SERVICES AND FACILITIES

1. EXISTING SETTING

Emergency medical facilities and services in the Lancaster area are provided by a combination of public and private sources.

a. Hospitals

The following three hospitals provide comprehensive medical service to Lancaster:

- *Lancaster Community Hospital* Located on 10th Street West north of Avenue K, this privately-owned facility operates 132 beds with a 6-bed emergency room. Comprehensive service includes a wide range of surgical procedures, including out-patient surgery, a Cardiac Care Unit center (CCU), an Intensive Care Unit (ICU), physical therapy, radiology, and an ophthalmologic (eye) treatment facility.

  The hospital has plans to expand its service and facilities as the community grows. Emergency and Urgent Care has been significantly expanded by the addition of a new Heart Catheterization Lab. A two-story future expansion is also planned to house pediatrics and obstetrics and gynecology (OB/GYN). The hospital has identified a long-term community need for additional mental health and substance abuse programs, both for adults and teenagers (see Social Services).

- *Antelope Valley Medical Center* This publicly-owned facility currently operates 341 beds with a 13-bed emergency room. It is a full service facility with a wide range of services, including Intensive Care (ICU), Cardiac CCU, obstetrics, and 9 operating rooms. This facility also serves as a regional paramedic base for Los Angeles and Kern Counties. The hospital also provides adult and adolescent mental health services.

  The hospital has expanded by adding three new nursing stations, almost doubling the hospital's existing obstetrical facilities. The hospital has also added 80 medical-surgical beds, bringing the total number of beds to 341, the largest hospital in northern Los Angeles County. The hospital has indicated there are inadequate medical services for the poor and indigent in the Lancaster area. The county has no delivery facilities in the Antelope Valley, but provides prenatal and postpartum care for women through a joint agreement with Antelope Valley Medical Center. The nearest hospital that could serve pregnant women receiving medical aid in the Antelope Valley is Olive View Hospital, 55 miles away. The growing number of low income persons requiring medical attention will further stress the health care system in the Antelope Valley.

- *Los Angeles County High Desert Hospital* This 173-bed hospital is located at 60th Street West and Avenue I. Services include acute medical care, Intensive Care Unit (ICU), a skilled nursing facility, and acute ancillary services, such as radiology, respiratory therapy, a laboratory, pharmacy, and dietary unit. There is a walk-in clinic and an outpatient clinic that includes general medical and pediatrics with 25 specialty clinics. A proposed expansion plan would increase the number of hospital beds to 274 (26 in the obstetrics clinic and 30 for pediatrics) with 24-hour emergency services.

  There are also a number of other private medical centers and clinics in Lancaster, that together, provide a comprehensive array of specialized medical services, including 24-hour emergency treatments.

b. Paramedic Services

The Los Angeles County Fire Department presently provides paramedic service to the Lancaster area. The Department maintains a total of 10 paramedic personnel at Fire Stations 33, 84, 37, and 117.

Average response times are less than five minutes throughout the City, while emergency response times are often less than two minutes. The County Fire Department has plans to expand fire protection service, including paramedic staffing, as the City's population grows.

c. Ambulance Service

At present, Los Angeles County contracts with Wilson Ambulance Service to provide emergency medical transport service within the Lancaster area. Emergency (911) calls are screened by the Fire Department, and ambulance vehicles are routed as necessary. Under the County contract, Wilson Ambulance Service responds to all medical emergencies and transports the injured to local hospitals. They then bill for service to relieve costs, with the County providing a portion of the cost if the individual cannot afford to pay.

Wilson Ambulance Service presently operates out of three stations in Lancaster: 44826 Elm in downtown Lancaster; one station at 10th Street West at Avenue M, on the border of Lancaster and Palmdale; and one in Quartz Hill. The main station is located in Palmdale on North 6th Street East. In addition, the Los Angeles County Fire Department has an air ambulance service which is available routinely if the emergency warrants. This air ambulance is staffed with two paramedics.

d. Airborne Evacuation

The County Sheriff's Department maintains a local helicopter for aerial surveillance, which can also be used for transport in a medical emergency. Emergency transport is also available by helicopters stationed at hospitals in the Los Angeles area. Response times vary from 20-40 minutes, except during inclement weather. In addition, the Los Angeles County Fire Department has an air ambulance service which is routinely available if the emergency warrants. This air ambulance is also staffed with two paramedics.

e. Evacuation Routes

The possibility of a disaster of great magnitude necessitates careful planning of evacuation routes. The unpredictability of the impact of any disaster on existing streets and highways makes definite evacuation route designation impossible until a disaster actually occurs and damage is assessed. Figure III-H-1 depicts evacuation routes along with emergency service facilities, assuming that major streets and freeways are functional.

At present, all of the major north-south arterials in the City between 50th Street West and 10th Street East are designated as local emergency evacuation routes by the City's Multihazard Functional Plan. In addition, all of the major east-west arterials between Avenues H and L are also designated as local evacuation routes. However, the major limitation to City evacuation is not local access, but limited regional evacuation routes. The only existing regional evacuation routes for the Lancaster area are: the Antelope Valley Freeway (State Route 14); Sierra Highway; and State Route 138. The Antelope Valley Freeway provides an evacuation route north into Kern County and south into the Los Angeles basin. However, the southern route is restricted in terms of the peak vehicular volume it can accommodate. Since this route would also be used by Palmdale residents, it would become completely congested during a major emergency. The southern portion of Route 138 eventually connects with Interstate 15 to the east, but also passes through Palmdale, and thus would also be used by their residents in the event of a disaster. The northern portion of Highway 138 turns west along Avenue D and proceeds to Interstate 5. While this provides an alternate regional access point, it is presently a narrow, two-lane road. Even though evacuation may use both lanes as outbound, the narrow road width would severely restrict the volume of traffic that could evacuate along this route.

Without additional peripheral, or through, freeway facilities, regional evacuation routes for the Lancaster area are constrained. In a large-scale evacuation, all major arterials would soon become congested. As a result, a significant percentage of traffic would leave the City via surface streets, although these too would become congested during the height of an evacuation.

f. Disaster Preparedness

The City of Lancaster maintains an Emergency Operations Center (EOC) at City Hall to coordinate City services during major emergencies. During a disaster, this centralized command center houses personnel from the Fire Department, Sheriff's Department, City departments, the Highway Patrol, Red Cross, and other appropriate agencies. Mass care shelters have already been designated in conjunction with the Red Cross and local school districts. During a regional disaster, such as a major earthquake on the San Andreas Fault, the City EOC would coordinate its activities and make requests for aid through the County EOC in downtown Los Angeles. The procedures that the City will follow in responding to anticipated emergencies (such as flood, fire, earthquake, hazardous material spills, etc.) are outlined in its Multihazard Functional Plan.

2. ANALYSIS

a. Hospitals

The Lancaster area is presently served by a total of 646 beds at three hospitals, plus 19 emergency room beds. This represents a service level of one regular hospital bed per 137 City residents, and one emergency room bed per 4,670 residents. This level of service appears to be adequate, based on turnover and occupancy rates at the three facilities. Using these same standards, the City will require a total of 1,710 regular and 50 emergency room beds by the year 2010, based on a projected population of 234,228 residents. Assuming a range of 200-400 beds per hospital, buildout of the City will require at least three additional full service hospitals to provide adequate medical service as the community grows. This also assumes that a similar level, in terms of amount of variety of specialized medical facilities as presently exists, will be maintained in the future. In addition, the eventual re-establishment of a trauma care center within the Antelope Valley will be necessary.

b. Paramedic/Ambulance Service

As the City grows, additional paramedic, and eventually ambulance, services will be needed. As long as the County maintains its existing staffing levels for paramedics and contractual arrangements for ambulance services, there will be adequate emergency services to area residents.

Local hospitals may wish to join a joint benefit association with the County Fire Department and/or the County Sheriff's Department to provide local emergency helicopter service. Additional service will become a significant need as development extends beyond the service areas of the existing fire/paramedic status and the local ambulance companies.

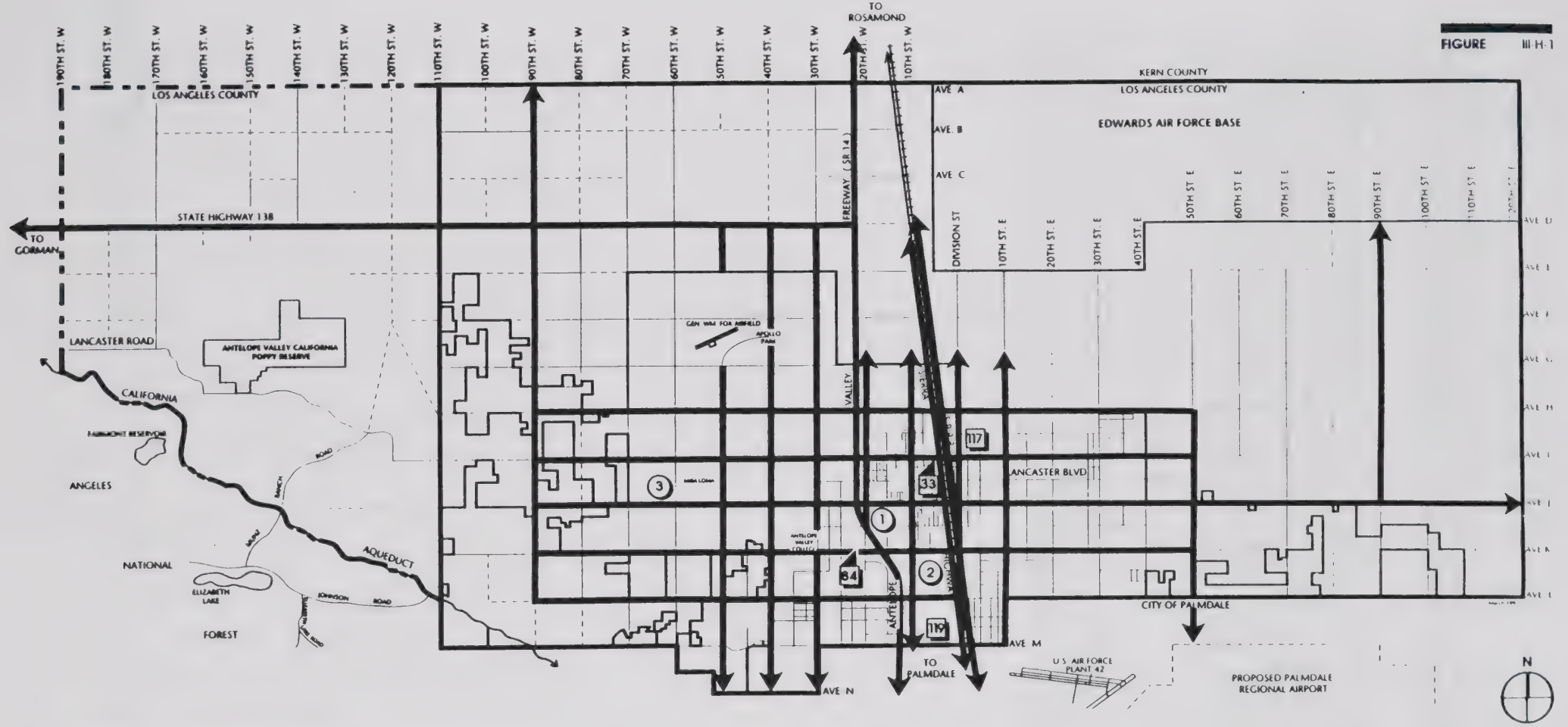
c. Evacuation Routes

Site-specific evacuation plans, which have been developed for certain known hazards, are included in the City's Multihazard Functional Plan. These plans describe the potential impact area(s) for known hazards, the number of people in the threatened area, and any special facilities affected. They also include preplanned traffic and access control points, evacuation routes, warning assignments, transportation requirements, evacuation assembly points, and predesignated mass care facility locations.

If a decision is made to evacuate, the public will be warned by designated mobile units, local radio and television, and other predetermined means. Law enforcement and traffic control personnel will be dispatched to designated traffic and access control points. Transportation providers will be contacted to dispatch vehicles to designated evacuation assembly points. Predesignated mass care facilities will be activated.

Evacuations involving a large number of people will require the determination and establishment of traffic and access control points, evacuation routes, and evacuation assembly points. If the area to be evacuated is large, it may be necessary to divide it into sub-areas in order to expedite and prioritize movement. Persons closest to the hazard would generally be warned and evacuated first. The evacuation area would be expanded until all of the threatened population is evacuated.

FIGURE III-H-1



PLANNING NETWORK

EVACUATION ROUTES

HOSPITALS
1. Antelope Valley Medical Center
2. Lancaster Community Hospital
3. High Desert Hospital

L.A. COUNTY FIRE STATION

L.A. COUNTY FIRE STATION, HOUSING PARAMEDICS
Station Numbers shown inside symbol.

SOURCE: City of Lancaster Multihazard Functional Plan.

EVACUATION ROUTES

CITY OF LANCASTER GENERAL PLAN

The provision of adequate routes to evacuate the local population during a major emergency depends on expanding existing, or providing additional regional roadways.

In the case of major urban development west of 70th Street West, road improvements consist of widening Avenue D (State Highway 130), 170th Street West, and Lancaster Boulevard into 6-lane divided highways. As Lancaster Boulevard leaves the Valley, it will transition to a four lane improved highway for approximately fourteen miles. All of these improvements will help residents of the development evacuate the immediate area; however, in the case of an area wide evacuation, all of these routes will already be jammed from people leaving the City. This leaves the far western portions of the study area with few escape routes out of the Valley.

d. Disaster Preparedness

To prepare for disasters it is important for the City to work closely with local agencies, especially the school districts, to assure that there will be adequate public services during major emergencies (see Geology/Seismicity for earthquake planning guidelines). Coordinated efforts will help to facilitate disaster operations and speed recovery activities.

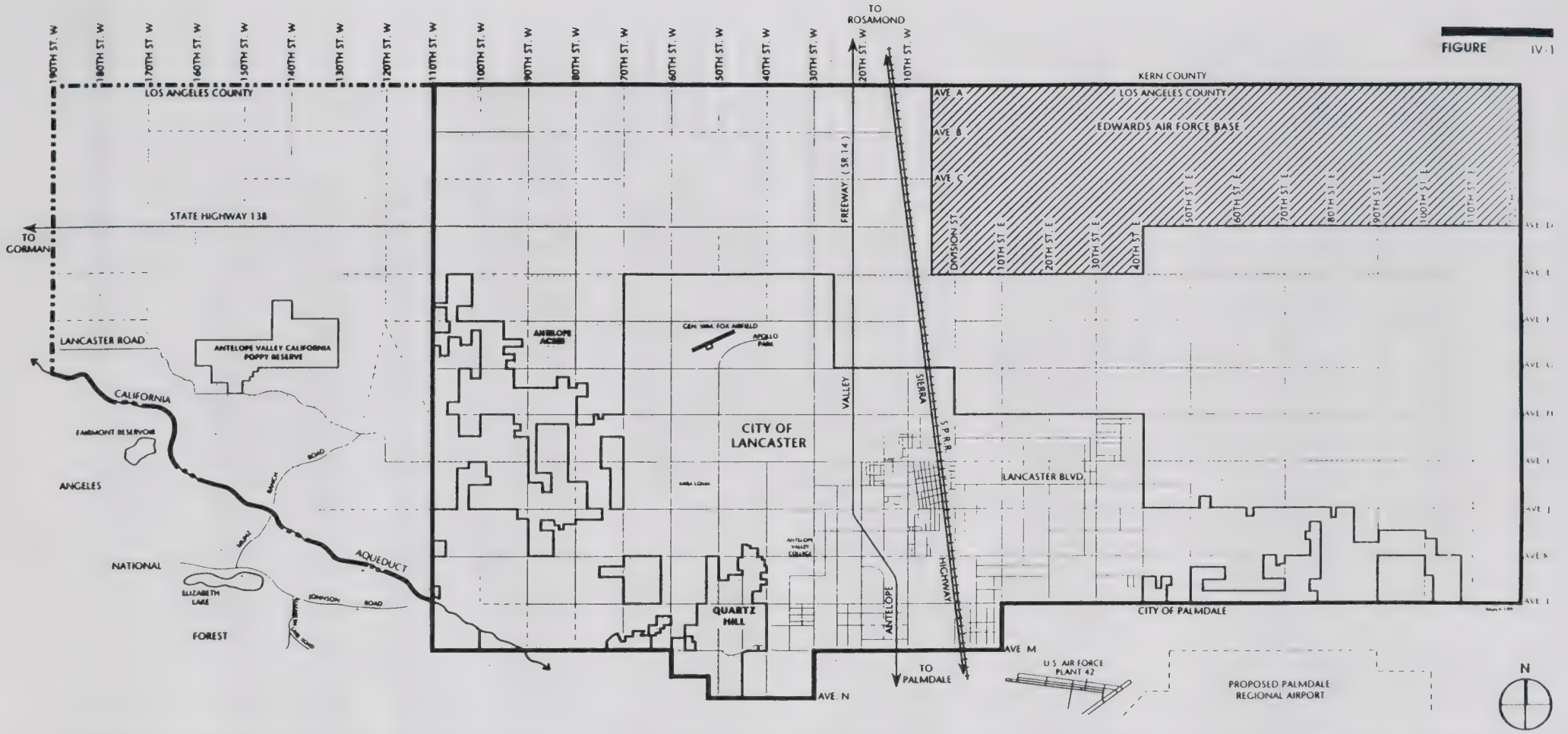
IV. STATE OF THE CITY REPORT
LIVING ENVIRONMENT

IV. LIVING ENVIRONMENT

INTRODUCTION

The Living Environment Chapter analyzes population composition and projections for the Lancaster General Plan study area (see Figure IV-1), along with the types and number of housing units required to house existing and future populations. Various amenities important in maintaining the type of living environment desired by Lancaster residents are also evaluated. In addition, this chapter focuses on the manner in which the needs of special population groups, such as low income households or the elderly, can be met.

FIGURE IV-1



AREA CONTEXT

PLANNING NETWORK

- CITY BOUNDARY
- INCORPORATED AREA
  As of October, 1990
- SPHERE OF INFLUENCE BOUNDARY
- EXPANDED STUDY AREA
- UNINCORPORATED
- EDWARDS AIR FORCE BASE

SOURCE: City of Lancaster Planning Department

CITY OF LANCASTER
GENERAL PLAN

A. POPULATION CHARACTERISTICS

1. EXISTING SETTING

An understanding of the size and character of the Lancaster population is fundamental to an understanding of the Lancaster community. Analysis of the driving forces behind past growth yields an indication of what future growth trends might be. This, in turn, yields an insight to potential demands for municipal services and facilities. In addition, an understanding of the characteristics of the City's past and existing population is critical to an identification of the type and variety of amenities that will be desired by the community as it moves into the future.

a. Growth Trends

Much of Lancaster's past population increase was directly related to growth of the aerospace industry. Population growth was, to a large extent, tied to the economic ups and downs of that industry. As employment at Edwards Air Force Base and Plant 42 expanded, local population growth increased. During times when spending for military aerospace programs was curtailed, population growth was at its slowest.

During the 1980s, the Antelope Valley economy was transformed by the new growth incentive of affordable housing. With the advent of the affordable housing market, population growth became less dependent upon fluctuations in the local economy. While the aerospace industry has remained the largest local employer, it is no longer the primary growth inducer it once was. It now competes with the tremendous attraction that affordable housing holds for many first-time home buyers, primarily from the San Fernando Valley.

Present population growth within the Antelope Valley and Lancaster is following the trends of other Southern California regions. These trends show residents trading lifestyles: Leaving the congestion, crime, and high housing costs of Los Angeles and Orange Counties for less crowded areas, with lower crime rates and much lower housing costs. These residents have moved to Ventura County, western San Bernardino and Riverside Counties, and most recently into the Antelope Valley, where the Cities of Palmdale and Lancaster have been the primary destinations.

Unlike the new residents of earlier years, the majority of the more recent arrivals in Lancaster continue to work in the Los Angeles basin. At present, housing and job-related factors compose almost 60 percent of the reasons for people living in, or relocating to, the Antelope Valley. A survey conducted by Gobar and Associates in March 1990 reached the following conclusions:

- 49 percent of the respondents who moved to the Antelope Valley in the last year said they did so because of the lower cost of housing;
- 47 percent of the respondents who moved to the Antelope Valley in the last three years said they chose to do so because of the lower cost of housing; and
- approximately 43 percent of these residents commute more than one hour to work (Agajanian and Associates, 1990).

The availability of lower cost housing likely accounts for a larger percentage of those moving to the Antelope Valley. In many cases, an initial decision to move may have been motivated by the ability to buy a larger house for less money, or the availability of lower priced housing. However, when asked why they moved to Lancaster or the Antelope Valley, respondents answered with a motivation of moving to a specific location (e.g. liked the neighborhood, friends or relatives nearby). In these cases, the difference in housing prices between Lancaster and the Antelope Valley and locations "down below" were part of the reason for moving, even if not specified.

b. Historical Population Growth

An examination of historical population growth (see Tables IV-A-1 and IV-A-2) reveals that Lancaster had a period of rapid expansion between 1950 and 1960, contrasted with a decade of little population growth between 1960 and 1970[1]. The 1980s were another period of expansion for this high-desert community. During this decade, the City population increased by 85 percent[2].

Table IV-A-1
Historical Population Growth
City-County Trends, 1950 - 1990

	CITY OF LANCASTER				LOS ANGELES COUNTY	
	Population	Percent of Total County Population	Average Annual Growth	Average Annual Growth Rate(%)	Population	Average Annual Growth Rate(%)
1950[2]	10,250	0.2%			4,151,687	
1960[2]	31,503	0.5%	2,125	20.7%	6,038,771	4.5%
1970[2]	33,460	0.5%	196	0.6%	7,041,980	1.7%
1980[1]	48,027	0.6%	1,457	4.4%	7,477,503	0.6%
1990[2]	88,732	1.0%	4,071	8.5%	8,769,944	1.7%

1 1980 is the first U.S. Census data year after incorporation in 1977.

2 California Department of Finance, 1990

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1 According to California Department of Finance statistics, the population in the Lancaster area grew an average of 20.7 percent per year between 1950 and 1960; while the average annual growth rate between 1960 and 1970 was only 0.6 percent.

2 The 1990 population figures described in the text and tables are based on California Department of Finance figures. According to the Bureau of the Census, the actual population in 1990 was 97,291. Thus, Lancaster population growth appears to have been much more rapid than previously estimated.

The City of Lancaster and the Antelope Valley are among the fastest growing areas of Southern California. Since 1980, the City's population has nearly doubled, representing 1 percent of Los Angeles County's 8.6 million 1990 population. The population in Los Angeles County grew 17 percent between 1980 and 1990, while the Lancaster population change in that period (40,710) represents 3.1 percent of the total County growth (1.3 million). Table IV-A-3 shows the 1990 population of Lancaster and the entire study area.

Table IV-A-2
Historical Population Growth
City of Lancaster, 1980 - 1990

	Population	Actual Growth	Average Annual Growth	Actual Percentage Growth	Annual Percentage Growth
1980[1]	48,027				
1985[2]	56,699	8,672	1,734	18.1%	3.6%
1990[2]	88,732	32,033	6,407	56.5%	11.3%

1 1980 Bureau of Census

2 California Department of Finance, 1990

Table IV-A-3
Total 1990 Population:
Lancaster General Plan Study Area

City of Lancaster	88,732
Unincorporated	25,364
Total	114,096

Source: Department of Finance, SCAG

Note: The General Plan will be updated with 1990 Census data when the information becomes available.

c. Age of Population

Although the Lancaster population nearly doubled during the 1980s, the age distribution in the City has changed only slightly since the 1980 Census. The age distribution in 1990 (see Table IV-A-4) is heavily represented by the 6-17 age group (18.5 percent), with 46 percent of the population between ages 6 and 34. Over 70 percent of the population is under the age of 44. Three age groups have increased their representation in the population from 1980 to the present: 0 to 5 years, 25 to 44, and 65+.

The highest concentrations of school-age children are in the central and south Lancaster areas (see Figure IV-A-1 and Table IV-A-5). This is likely due to the fact that many new families are first time home buyers, who move into this area of Lancaster. The census tract areas with the highest percentage of elderly residents are also in these areas, but primarily west of Sierra Highway, in the older downtown area of Lancaster.

The City's median age of 31.2 years and average household size of 2.65 persons per household reinforces Lancaster's reputation as a community of young families. Additional data on dwelling units, housing sales prices, and household characteristics further supports this observation on characteristics of the City and can be found in the Housing section.

d. Educational Attainment

Estimates based on the 1980 Census were used to project the 1990 educational level of Lancaster and Los Angeles County residents. The resulting comparison indicated that Lancaster residents educational levels were higher than levels observed in Los Angeles County. Fifteen and one-half percent of the adult population (25 + years) in Lancaster had four or more years of college and 67.9 percent were high school graduates, compared to 12 percent and 41 percent in the County (see Table IV-A-5). The census tracts with the highest percentage of college educated adults were found in census tracts 9010.00 and 9007.01 (see Table IV-A-5 and Figure IV-A-1). These figures indicate that families in those areas of the community are in the higher socioeconomic categories.

It is anticipated that 1990 Census data will again indicate that the educational level of Lancaster residents is higher than that observed countywide. This conclusion is based on the observation that the influx of new residents into Lancaster and the Antelope Valley consists primarily of households containing young professionals.

e. Ethnicity

Minority groups represent a small portion of the Lancaster population, compared to Los Angeles County (see Tables IV-A-6-a and IV-A-6-b). Persons of Spanish origin (who may also be represented in other ethnic groups) made up 15 percent of the 1990 population in Lancaster, versus 38 percent for the entire County of Los Angeles. This is a significant increase, however, from 1980, when persons of Spanish origin constituted only 7.2 percent of Lancaster's population. This percentage is likely to continue to increase through the 1990s, following trends in Southern California.

Table IV-A-4
Estimated Population Characteristics

	City of Lancaster						
	-----1980-----		-----1990-----		1980-1990 Change		1980-1990 Change in Percent of Population
	Number	Percent	Number	Percent	Number	Percent	
Lancaster							
Population	48,027		88,732*		40,705	84.8%	
Population in Households	47,571		86,679		39,108	82.2%	
Households	17,281		32,665		19,289	111.9%	
Families	12,844		21,668		8,900	69.7%	
Average Household Size	2.75		2.65		.10	3.6%	
Los Angeles County Average Household Size	2.69		2.82		.13	4.8%	
Males	23,533	49.0%	42,946	48.4%	19,400	82.4%	-0.6%
Females	24,494	51.0%	45,786	51.6%	21,305	87.0%	0.6%
Age Distribution:							
0 to 5	4,370	9.1%	9,583	10.8%	5,213	119.3%	1.7%
6 to 17	10,038	20.9%	16,415	18.5%	6,377	63.5%	-2.4%
18 to 24	5,907	12.3%	9,317	10.5%	3,410	57.7%	-1.8%
25 to 34	7,444	15.5%	14,641	16.5%	7,197	96.7%	1.0%
35 to 44	5,715	11.9%	12,955	14.6%	7,240	126.7%	2.7%
45 to 54	5,475	11.4%	10,027	11.3%	4,552	83.1%	-0.1%
55 to 64	4,899	10.2%	7,808	8.8%	2,909	59.4%	-1.4%
65 +	4,178	8.7%	7,986	9.0%	3,308	91.1%	0.3%
Median Age	30		31.2				
Los Angeles County Median Age	29.8		31.5				

Source: Department of Finance figures with prorated percentages from Urban Decision Systems, Inc., 1990

Note: The General Plan will be updated with 1990 Census data when the information becomes available.

Table IV-A-5
Education and Age Groups by Census Tract, 1990

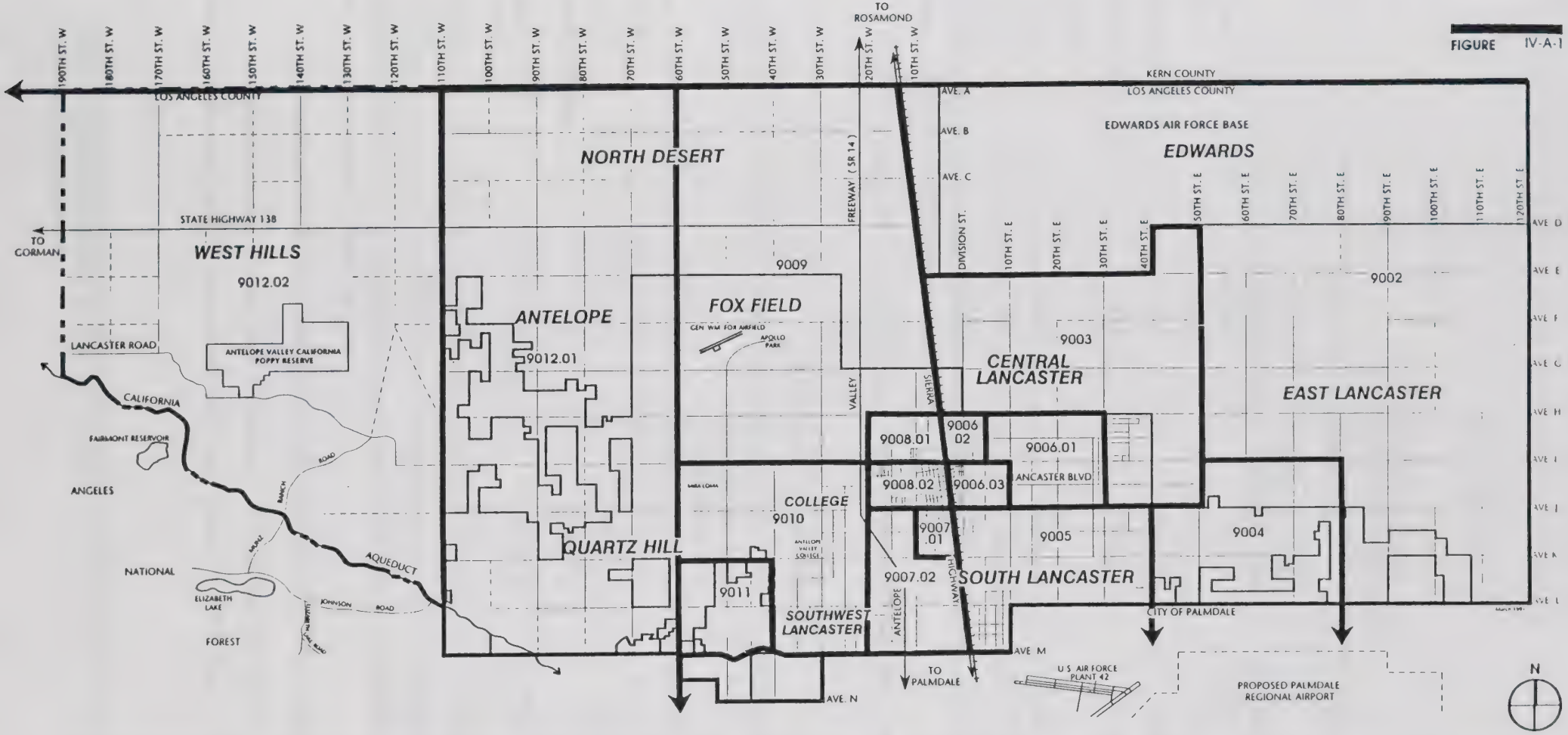
	CITY OF LANCASTER							POPULATION 25 YEARS AND OVER	
1990 Census Tracts	Population	Pre-School Population 0 to 5 years	Percent of Total	Percent of Tract	School-Age Population 6 to 17 Years	Percent of Total	Percent of Tract	Percent High School Graduates[1]	Percent College 4-Yrs.+[1]
9003.00	1,903	185	1.9%	9.7%	237	1.5%	12.5%	72.7%	5.0%
9005.00	15,579	1,792	18.8%	11.5%	3,256	19.9%	20.9%	77.1%	12.6%
9006.01	5,403	465	4.9%	8.6%	1,059	6.5%	19.6%	74.0%	12.1%
9006.02	6,305	567	6.0%	9.0%	889	5.4%	14.1%	72.1%	8.9%
9006.03	9,943	994	10.4%	10.0%	1,700	10.4%	17.1%	77.2%	16.2%
9007.01	5,147	525	5.5%	10.2%	818	5.0%	15.9%	79.1%	14.9%
9007.02	5,825	419	4.4%	7.2%	774	4.8%	13.3%	80.0%	20.1%
9008.01	6,666	793	8.3%	11.9%	1,145	7.0%	17.1%	73.6%	10.9%
9008.02	7,964	581	6.1%	7.3%	876	5.4%	11.0%	69.7%	16.6%
9009.00	1,209	82	0.9%	6.8%	123	0.8%	10.2%	na[2]	na[2]
9010.00	22,790	3,099	32.6%	13.6%	5,470	33.5%	24.0%	84.5%	24.9%
TOTAL PERCENT			10.7%			18.4%		67.9%	15.5%
County of Los Angeles								41.0%	12.0%

Source: Urban Decision Systems, Inc., 1990.

1 Proportion from 1980 Census.

2 Data available, but small sample size distorts proportion.

FIGURE IV-A-1



CENSUS TRACTS

PLANNING NETWORK

CENSUS TRACT BOUNDARY

SOURCE: Thomas Brothers Guide for Los Angeles County, with Census Tracts, 1990.

CITY OF LANCASTER
GENERAL PLAN

Table IV-A-6-a
Ethnicity - 1980 Estimates

	CITY OF LANCASTER		LOS ANGELES COUNTY	
	Number	Percent of Total Population	Number	Percent of Total Population
White	43,305	90.2%	5,073,617	67.9%
Black	1,589	3.3%	943,968	12.6%
American Indian	565	1.2%	47,234	0.6%
Asian, Pacific Islander	990	2.1%	416,288	5.6%
Other	1,578	3.3%	996,396	13.3%
TOTAL	48,027	100.0%	7,477,503	
Spanish/Hispanic[1]	3,435	7.2%	2,066,103	27.6%

Source: Urban Decision Systems, Inc. 1990

1 Includes people who may have listed themselves in more than one of the above categories.

Table IV-A-6-b
Ethnicity - 1990 Estimates

	CITY OF LANCASTER		LOS ANGELES COUNTY	
	Number	Percent of Total Population	Number	Percent of Total Population
White	77,225	79.4%	5,035,103	56.8%
Black[1]	7,207	7.4%	992,974	11.2%
American Indian	913	0.9%	45,508	0.5%
Asian, Pacific Islander	3,618	3.7%	954,485	10.8%
Other	8,328	8.6%	1,835,094	20.7%
TOTAL	97,291		8,863,164	
Spanish/Hispanic[2]	14,816	15.2%	3,361,242	37.9%

Source: Urban Decision Systems, Inc. 1990

1 The Bureau of the Census indicates that in 1990, 7.2 percent of the City's population was Black.

2 Includes people who may have listed themselves in more than one of the above categories.

Note: The General Plan will be updated with 1990 Census data when the information becomes available.

2. ANALYSIS

a. Population Projections

Population projections are an important and necessary part of a city's general plan. These projections help guide the city and local service agencies in determining the need for adequate services and facilities to serve future residents. The projections presented show a range of possible growth scenarios for Lancaster, based on historical population trends (see Tables IV-A-7 and IV-A-8).

As a means of predicting the rate of growth which might be expected in Lancaster over the next 20 years, a straight-line growth methodology was employed for three scenarios. The first is a "low-end" estimate, which is based on the average annual growth experienced within the City of Lancaster between 1980 and 1990, and extrapolating this forward to the year 2010. The average annual growth of the low estimate is 4,071 persons per year, with a total population in 2010 of 170,142. The second is a medium estimate using the City's population growth between 1985 and 1990, with an average annual growth of 6,407 persons per year with a total population in 2010 of 216,864. The high estimate was taken from Southern California Association of Government (SCAG) estimates using 7,274 persons per year growth, with a total population in 2010 of 234,228. The medium estimate appears to be the most representative of population growth to be expected, in light of the 1990 Census data and housing and population trends over the past six years.

Lancaster's population growth over the last nine years has been principally composed of young families. A community consisting of a large and fairly homogeneous group (young families with school-age children) may take advantage of the opportunity to focus its services to meet the needs of its largest groups, and potentially spread the costs of services over this larger group.

Commercial enterprises are also attracted to communities based on the numbers and characteristics of the population. This occurred in Lancaster during the 1980's, when commercial activity increased substantially to support the growing population. Based on the income and purchasing trends of the Lancaster population, it is possible to target or encourage specific retail and other commercial uses to the City. The selection of these uses must be tailored to the needs and desires of the local population.

SCAG projections were utilized for purposes of projecting year 2010 conditions in the unincorporated areas of the City's sphere of influence. In addition to the 234,228 population expected to reside within the City of Lancaster, SCAG projects that a population of 61,640 will reside within the unincorporated portions of the current Lancaster sphere. Thus, a total year 2010 study area population of 295,868 is projected (see Table IV-A-9).

Table IV-A-7
Actual Population Growth
City of Lancaster

Time Period	Population Beginning Year	Population End Year	POPULATION GROWTH Total Increase	POPULATION GROWTH Average Annual Increase	PERCENT GROWTH Total Increase	PERCENT GROWTH Average Annual Increase
1980-1985	48,027	56,699	8,672	1,734	18.1%	3.6%
1980-1990	48,027	88,732	40,705	4,071	84.8%	8.5%
1985-1990	56,699	88,732	32,033	6,407	56.5%	11.3%

Source: California Department of Finance, 1990

Table IV-A-8
Projected Population Ranges
City of Lancaster

	LOW ESTIMATE[1]		MEDIUM ESTIMATE[2]		HIGH ESTIMATE[3]	
	Actual Growth	Percent Growth	Actual Growth	Percent Growth	Actual Growth	Percent Growth
1994	105,014	18.4 %	114,358	28.8 %	117,831	32.8 %
2000	129,437	23.3 %	152,798	33.6 %	161,480	37.0 %
2010	170,142	31.5 %	216,864	41.9 %	234,228	45.1 %

Source: California Department of Finance and Southern California Association of Governments, 1990.

1 Projection using average annual growth between 1980-1990 based on DOF 1990 population estimate.

2 Projection using average annual growth between 1985-1990 based on DOF 1985 and 1990 population estimates.

3 Projection using SCAG annual growth of 7.274.

b. California Springs

As originally proposed, the California Springs master-planned community would significantly alter previously discussed population projections. The original proposal was a 5,675-acre community, approximately 16 miles west of downtown Lancaster outside the current sphere of influence. The expected time frame for the California Springs development was 25 years; including 21,402 housing units and a population of 48,540 (California Springs Administrative Draft Environmental Impact Report, Volume 1, 1990). The proposed development could also result in 42,090 additional jobs. Available data does not indicate the specific growth inducing impacts the project will have on the study area. It could result in large population increases, or merely population shifts, within the study area. Most likely, a combination of both will occur.

It is likely that initial phases of California Springs would be competitive with other areas of the Antelope Valley, but if development of that project were to occur, its momentum would create population growth over and above that which is projected for Lancaster and the Antelope Valley. However, because General Plan policy requires California Springs and other potential urban communities of this type to be self-sufficient in terms of municipal services and facilities, the General Plan assumes that population growth within California Springs over the next 20 years will be in addition to projected population growth rates for the City of Lancaster.

Table IV-A-9
Year 2010 Projected Study Area Population

	1990		2010	
	Total Population	Group Quarters Population	Total Population	Group Quarters Population
City of Lancaster	88,732	2,053	234,228	2,337
Unincorporated	25,364	797	61,640	896
STUDY AREA TOTAL	114,096	2,850	295,868	3,233

Source: California Department of Finance, SCAG

c. Effects of Growth

The effects of projected population growth within the City of Lancaster include increases in the following areas:

- demand for public and private services and facilities;
- consumption of resources, including an increased demand for water;
- demand for housing which is affordable to a broad range of income groups;
- demand for local employment opportunities;

- traffic and related improvements to the circulation system;
- production of liquid and solid wastes, as well as generation of air pollutant emissions;
- loss of open space and agricultural land; and
- potential conflict between urban and rural communities and lifestyles.

It is the purpose of the General Plan to provide the City with the means to manage its future in such a manner that permits new growth and mitigates the potential negative impacts of growth.

The seven component plans which make up the Lancaster General Plan each deal with various aspects of accommodating projected population growth in a manner which realizes the community's vision of its future and which mitigates the potential negative consequences of that growth.

A major growth issue for Lancaster's future, and that of the Antelope Valley, will be the relationship between population, housing, and job growth. The Southern California Association of Governments (SCAG) projects that population within the City of Lancaster and the Antelope Valley will nearly triple over the next twenty years. Over that same period of time, SCAG projects that the number of jobs will slightly more than triple. This means that the ratio of jobs per population (and jobs per household, also known as jobs/ housing balance) will increase only slightly over the same period.

There are far-reaching consequences to this population and employment projection for Lancaster and the Antelope Valley. If both the area's resident population and employment roughly triple over the next twenty years, it follows that the area's commuter population will also roughly triple over that time period. Thus, assuming the SCAG projections are correct, unless there are major increases in employment levels at Edwards Air Force Base, in southern Kern County, or the Victorville/Adelanto area, the number of people commuting down below to the San Fernando Valley and beyond will roughly triple by the year 2010. Current and proposed transportation facilities do not have the capacity to handle this increase. Consequently, if present population and employment trends continue, traffic congestion will become a major issue for Lancaster and the entire Antelope Valley.

Some of the effects of increased traffic congestion include a decrease in local air quality; lost worker hours spent commuting; increased fuel and transportation expenditures; an increase in the amount of employee stress, tardiness, and absenteeism; and less time available for leisure, recreation, and family life. There is also concern in many communities that the advent of large commuter populations brings with it an array of social problems, such as a proliferation of "latch key" children and alienation of a large segment of the population which does not have time for socialization with neighbors or involvement in community affairs as a result of long commute times. These types of problems are collectively known as "commuteritis," which is discussed further in the Social Services Section.

One possible solution to continuing increases in commuter population is to triple the capacity of the Antelope Valley Freeway, which would triple in size from the current six-lane freeway to eighteen lanes, to adequately provide for the new population. This solution is economically and physically impossible.

Another possible solution would be to develop a commuter rail system, providing connections into the San Fernando Valley and other employment centers of metropolitan Los Angeles. In addition to the difficulty of finding financing for such a venture, traffic and parking facilities would be required for the cars that people drive to rail stations. As a result, a trade-off would have to be made in decreasing congestion on the roads to work, but possibly creating congestion around the central cores of commuter rail stations. To some extent, this congestion could be relieved by improvements in the bus system.

Additional capacity along the Antelope Valley Freeway is desirable, as is development of a commuter rail connection to other portions of the metropolitan area. However, neither solution, nor a combination of increased freeway capacity and commuter rail connections, will provide for the self-sufficient community which is envisioned for Lancaster's future. In addition, neither solution will fully provide for the future financial health of the City of Lancaster.

d. Jobs/Housing Balance

The concept of addressing the imbalance of jobs and housing in a community is gaining popularity and is being incorporated into various regional planning programs. Imbalances between the location of housing and employment are linked to many problems, ranging from increased traffic congestion along corridors, such as the Antelope Valley Freeway, local fiscal strain, air pollution, and an overall lessening of the quality of life. The theory is that, by achieving a balance between available employment and the labor force residing in a given area, the negative impacts of long commutes, such as air pollution, high stress levels, time and transportation expenditures, can also be reduced. As an increasing proportion of area residents are able to obtain local employment, the amount of time required for child care and the number of hours "latch key" children remain alone can be reduced. Also, by increasing employment levels in a housing rich area such as Lancaster, an additional source of municipal revenue can be secured to assist in the development and maintenance of the amenities desired by area residents. Achieving a balance between area employment and workers would also reduce the costs and time of extensive road expansions and the development of a commuter rail system.

As discussed in the SCAG 1988 Growth Management Plan, a community reaches a jobs/housing balance when "it includes the right number (or balance) of housing and employment opportunities so that most people living in it can work in the area."

According to SCAG, a balanced region would have a ratio of 1.22 jobs per dwelling unit by the year 2010, meaning that 1.22 jobs would be available for each housing unit in the community. Presently, the ratio between jobs and housing in Lancaster and the Antelope Valley is 0.72. Assuming that jobs at Edwards Air Force Base are considered local to Lancaster (although some distances to the base from Lancaster can be up to 40 miles), the current jobs/housing ratio for the Lancaster area is 0.90. A jobs/housing ratio of 0.90 means that there is less than one job for each household. If all currently employed residents were employed in Lancaster, the jobs/housing ratio would be 1.46; i.e., there would be 1.46 jobs for each household. The projected need for a 1.46 ratio to achieve a local balance, compared to the 1.22 theoretical balance for the region, occurs because of the smaller proportion of retired persons present in the Antelope Valley area and the larger proportion of two wage earner households than is found regionally.

All too often, the concept of jobs/housing balance is perceived as a balance simply between the number of houses and number of jobs in a community. However, a true balance would also include a correlation between the cost of housing in an area and the income of area workers. It is important to avoid a situation where the pattern of suburban job growth, rather than shortening commuting distances and improving environmental quality, actually brings about the reverse situation: a continued export of area workers to distant job centers, and an import of workers from distant population centers to local jobs.

A popular argument against the desirability or effectiveness of the jobs/housing balance concept is that the concept assumes that workers want to live close to work. Many argue that this may not be a priority for some people. People generally choose to live "convenient" to work; for some this may be a close distance, but for others it may mean living relatively far, but having an "easy" drive. Other factors, aside from job location, that affect where people live include the following:

- housing prices and characteristics such as neighborhood quality, parks, and other amenities;
- individual preferences, for example, workers may choose to live in lower density, rural locations, which are generally found further from the job site;
- an increased number of multiple worker households, which means that living near one resident's job site may not mean living near another resident's job site; and
- incremental commuting costs may be much less and therefore more popular than higher housing costs (The Planning Institute, 1990).

In addition, some argue that a jobs/housing balance will not solve congestion problems, since there is no assurance that jobs created in a given area will actually be filled by current area residents. However, improving the balance between the jobs and housing available in the community will result in decreases in the future proportion of the commuter population in relation to total population. As jobs are created, new housing will tend to be filled to a greater degree by local workers than by commuters. In addition, the creation of local industry, consistent with General Plan environmental policies, will assist in enhancing municipal income and improve the City's ability to provide the high level of services and facilities desired by Lancaster residents. While there are no assurances that increasing the rate of job creation in Lancaster and the Antelope Valley in relation to population growth will actually provide jobs for current residents, there are still valid reasons for pursuing a balance between population and employment.

There is no single, simple solution to the problem of achieving a jobs/housing balance. There are a number of land use policies and approaches that must be taken together to reduce congestion, improve environmental quality, and improve mobility. Measures and actions local jurisdictions can implement to promote a jobs/housing balance are discussed in Appendix I of SCAG's Growth Management Plan. Available methods to implement a jobs/housing balance are also discussed in detail in the Plan for Economic Development and Vitality.

Among the possible measures identified by SCAG that can be taken by a community to achieve a balance between jobs and housing include:

- imposing exactions to cover external costs of imbalanced development;
- zone changes can be made to require a minimum level of jobs/housing balance;
- enterprise zones could be established to encourage economic activity and hiring the unemployed;
- redirecting job growth to housing rich subregions (such as the Antelope Valley), and establishing a process to fund priority projects could also be implemented;
- locating new job-inducing public facilities, such as universities and airports, in "job-poor" areas;
- providing incentives to encourage developers to build commercial and industrial facilities in job-poor subregions;
- supporting and promoting telecommunications technology to decentralize employment and economic activity;
- identify potential growth industries and provide incentives to attract these industries to tailor the City's economic activities so that they best match the population's characteristics;
- provide education, training, and support services to the resident labor force to increase the labor supply for future businesses; and
- increased emphasis on accommodating suburban employment growth in higher-density, mixed use work centers.

B. HOUSING AND HOUSEHOLD CHARACTERISTICS

1. EXISTING SETTING

Lancaster and the Antelope Valley represent a distinct area for housing. The rise in the cost of housing in the Los Angeles area placed the majority of single family housing out of the price range of most working people. In the Antelope Valley, however, much of the housing remained affordable to those workers. Single family homes are priced up to 40 percent below comparable homes found in the Los Angeles and San Fernando Valley areas. Recent data indicate that the majority of the people who moved into the Antelope Valley during the 1980s did so in order to purchase single family homes. The affordability of housing, coupled with the residential atmosphere of the area and the relatively good air quality, attracted many people who work in Los Angeles and the San Fernando Valley. Although commutes to work can be as long as sixty miles or more one-way, affordable housing has remained a strong incentive for moving to the Antelope Valley, even without the prospect of local employment.

Although the majority of housing construction in Lancaster during the 1980s was single family, there was also a boom in multi-family housing construction. In fact, during 1985 and 1986, more building permits for apartment units were issued than for single family dwellings (see Table IV-B-1). While the single family boom has been primarily due to affordable housing, the multi-family boom was due, in part, to an increase in construction and aerospace workers needing housing, and the need for temporary quarters for people seeking single family units. However, the most important factor in stimulating multiple family construction during this time was the availability of below market rate financing through the issuance of tax exempt multiple family revenue bonds.

In addition to geographic location of the valley and the price of new and used housing units, other factors, such as the vacancy rate, the mix of types of units, and the availability of employment, are prime determinants of local household composition.

The overall housing conditions and goals of the City have been addressed in two major City documents: The Lancaster Housing Assistance Plan (HAP, 1988), which is required by the Department of Housing and Urban Development (HUD), and the Regional Housing Needs Assessment (RHNA), which is published by the Southern California Association of Governments (SCAG). These reports identify the number and types of housing units found in the City, along with information on the status of housing low income and special needs households.

a. Total Dwelling Units

Along with population, housing construction in the City of Lancaster and the study area has increased dramatically over the last decade. According to State Department of Finance estimates, the housing supply in Lancaster increased from 18,127 units in 1980 to 36,525 units in 1990, as shown in Table IV-B-2. This represents a total increase of over 100 percent, or approximately 10 percent per year. During this same period, the population grew from 48,027 to 88,732 persons. This represents a total of 85 percent, or over eight percent per year. However, 1990 Census figures are significantly different from Department of Finance estimates. The 1990 Census figures indicate that population per household is 2.69, while the Department of Finance estimates Lancaster's population per household to be 2.65.

The vacancy rate, referring to the number of vacant units which are for sale or rent as a percentage of the overall market, has fluctuated over the years, due to changing economic situations. In 1980, the vacancy rate for all units in Lancaster was 4.5 percent. By 1990 the vacancy rate had reached 10.6 percent, a 74 percent increase, (1990 DOF). Based on 1990 Census data, the 1990 vacancy rate is 9.2 percent.[1]

b. Housing Unit Mix

To a large degree, the type, or mix, of housing units within the City and the household characteristics of a community are reflections of each other. The unit mix in Lancaster has changed substantially between 1980 and 1990 (see Table IV-B-2). The multi-family units of 5+ units more than doubled from 9 percent in 1980 to 20 percent in 1990. According to the California Department of Finance, in 1980, 74 percent of total units were single family, with 96 percent of those units being detached units. In 1990, this percentage had dropped to 64 percent of the total units in Lancaster, with 97 percent of those being detached dwellings. In 1980, 14 percent of the total units in the City were multi-family, and, of those, 64 percent were in buildings with over five units. By 1990, 27 percent of the total housing units were multi-family, with 74 percent of those buildings containing over five units. Mobile homes in Lancaster have remained fairly stable between 1980 and 1990. In 1980, 12 percent of the total dwelling units were mobile homes, with a decline over the years to 9 percent by 1990. It should be noted that the majority of these changes occurred from 1985 through 1986, when both single family and multi-family construction increased dramatically in response to demand for affordable housing. Building permit records for Lancaster show that permits for multi-family units declined from 1,387 in 1986 to 479 by 1988. Permit issuance for single family dwellings remained strong through this period, not declining until 1990, following a period of rapid housing cost increases and a general downturn in the regional housing market (see Table IV-B-1).

The duplex and condominium markets were very poor during the 1980's in the Antelope Valley. Single family detached homes were so affordable that very few people wanted to invest in condominiums or duplexes. Therefore, very few of these types of housing units were constructed. However, with the rapid price increases for single family homes between 1988 and 1990, the condominium and duplex market may become a viable alternative source of affordable housing in the Antelope Valley. The areas with the greatest number of multi-family units are Census Tracts 9007.02 and 9010. The greatest number of mobile home units is found in Census Tract 9006.1 and 9006.02, while the highest percentage of mobile home units is located in Census Tract 9009 (see Table IV-B-3 and Figure IV-B-1).

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[1] The General Plan will be updated with 1990 Census data when the information becomes available.

Table IV-B-1
City of Lancaster Building Permits

Year	NUMBER OF UNITS				
	Single Family Residence	Condominium	Apartment	Mobile Home Subdivision	Mobile Home Park[1]
1980	398	33	122	0	0
1981	259	205	104	0	0
1982	198	79	434	0	0
1983	530	96	534	0	0
1984	575	27	561	0	0
1985	1,397	0	1,729	0	0
1986	1,134	1	1,387	0	0
1987	1,252	156	479	0	0
1988	1,792	0	609	0	0
1989[2]	3,344	53	613	0	0
1990	841	0	130	0	0
1991[3]	320	0	0	0	0
TOTAL	12,040	650	6,702	0	0

Source: City of Lancaster, 1991

1 Mobile Home Parks are now issued permits by the State of California.

2 The 1989 figure reflects the City Council's imposition of a Traffic Impact Fee, effective January 1, 1990.

3 Total for 1991 is for seven month period, January to July only.

Table IV-B-2
Lancaster Housing Mix

	1980	%	1985	%	1988	%	1989	%	1990	%	1990 Total L.A. County	%
SINGLE FAMILY												
Detached	12,886	71	14,658	67	18,014	59	19,344	60	22,699	62	1,558,898	49
Attached	494	3	573	3	574	2	718	2	728	2	144,310	5
MULTI FAMILY												
2-4 Units	958	5	1,522	7	2.001	7	2,195	7	2,368	7	212,066	7
+ 5 Units	1,648	9	2,752	12	6,504	21	6,948	21	7,388	20	1,212,456	38
Mobile Homes	2,141	12	2,357	11	3,213	11	3,274	10	3,342	9	46,412	1
TOTAL UNITS	18,127	100	21,862	100	30,306	100	32,479	100	36,525[1]	100	3,174,142	100
UNIT INCREASE[2]												
Total	----	----	3,735	21	8,444	39	2,173	7	4,046	12	43,066	1.4
Annual	----	----	747	4	2,815	13	2,173	7	4,046	12	43,066	1.4
Occupied Units[3]	17,312	95	20,558	94	28,036	93	30,552	94	32,665	89	3,048,647	
Persons/Dwelling Unit[4]	2.65		2.59		2.45		2.53		2.43		2.76	
Vacancy (%)		4.50		5.96		7.49		5.93		10.60[5]		3.95
Persons/Household	2.75		2.73		2.63		2.61		2.65		2.82	
Population	48,027		56,699		74,474		82,182		88,732[6]		8,769,900	
POPULATION INCREASE												
Total	----		8,596	18	17,724	31	7,763	10	6,600	8	117,105	1.3
Annual	----		1,719	4	5,908	10	7,753	10	6,600	8	117,105	1.3

Source: California Department of Finance, E-5 Reports.

1 1990 Census figures show 36,217.
2 Annual figures are total units minus the previous period's total units. Annual figures are total divided by number of years.
3 Percentage is occupied divided by total units.
4 Total population divided by total units.
5 1990 Census figures show 9.2%.
6 1990 Census figures show 97,291.

Note: The General Plan will be updated with 1990 Census data when the information becomes available.

Table IV-B-3
Lancaster Housing Type By Census Tracts
June 1989

Census Tracts	Single & Duplex Units	% of Tract Total	Mobile Home Units	% Tract Total	Multiple Family Units	% of Tract Total	Single & Duplex & Mobile Home Units	% of Tract Total	Total Number of Housing Units
# 9002.00	417	84	55	11	26	5	472	95	498
# 9003.00	409	57	292	41	12	2	701	48	713
# 9004.00	44	79	6	11	50	89	6	11	56
# 9005.00	3,438	77	256	6	792	18	1,048	23	4,486
# 9006.01	1,024	53	676	35	241	12	917	47	1,941
# 9006.02	585	37	758	47	253	16	1,011	63	1,596
# 9006.03	1,890	78	3	0	536	22	539	22	2,429
# 9007.01	1,503	76	29	1	451	23	480	24	1,983
# 9007.02	1,431	31	158	3	2,966	65	3,124	69	4,555
# 9008.01	1,946	88	72	3	200	9	272	12	2,218
# 9008.02	2,428	79	0	0	628	21	628	21	3,056
# 9009.00	105	20	162	64	41	16	213	84	308
# 9010.00	4,628	79	8	.15	1,096	20	4,276	80	5,372
# 9011.00	1,662	66	278	11	590	23	1,940	77	2,330
# 9012.01	1,869	70	28	1	764	29	1,897	71	2,661
# 9012.02	1,052	80	119	9	145	11	1,171	89	1,316
TOTAL	24,431		2,900		8,791		18,695		35,518

Source: Los Angeles County Department of Regional Planning, Research Section, Bulletin No.154, Part 5

c. Housing Prices

The Antelope Valley is one of the fastest growing areas in Los Angeles County. Since incorporation in 1977, the City of Lancaster has experienced substantial growth in both the residential and commercial sectors. An increase in jobs at Air Force Plant 42 as a result of Rockwell's B-1B Bomber program, coupled with an expansion of employment opportunities at Edward's Air Force Base, stimulated the growth of new residential construction of both single family and multiple family homes during the 1980s.

More influential then aerospace, however, has been the growth of the area's affordable housing market. During the 1980s, many people moved to the Antelope Valley primarily to purchase a single family detached home. Housing prices 40 percent or more below the Los Angeles County average generated a strong incentive for migrating to the Antelope Valley during this time, especially for first time home buyers who were priced out of areas nearer to metropolitan Los Angeles. This migration occurred despite the fact that the majority of the new residents were forced to make long daily commutes to the Los Angeles area for employment.

The growth of this residential market has attracted many of the larger home builders to the area. These builders are currently constructing or proposing large tract developments that will attract more home buyers as long as prices within the Valley remain "affordable". While aerospace is still a very important employment incentive for the local economy, affordable housing is currently the key factor to growth in the Antelope Valley. This will continue to be the situation until the local economy can diversify. When the economy of the valley can provide employment as well as affordable housing for the majority of its residents, housing prices will no longer be governed primarily by distance from the Los Angeles metropolitan area job market.

Estimates of the current "average" home price vary, depending on how they are measured (see Table IV-B-4)[1]. The greatest volume of sales during the past two years (1989-1990) was in three bedroom single-family homes with an average sales price of approximately $120,000, two bedroom homes averaged $90,000, while condominiums averaged $70,000. The healthy sales of the three bedroom home reinforces the believe that a major portion of the Antelope Valley residential market is still comprised of first time home buyers. Current home prices in the Antelope Valley represent a substantial increase over the average price of the mid-1980s. In 1985, the average price for a new three bedroom single family home in the valley was approximately $83,000. However, the current average price for this type of unit in the Antelope Valley is still substantially below that of the Los Angeles metropolitan area, where the average price of a three bedroom single family home in February 1990 was $226,000.

The later part of the 1980s witnessed the development of a substantial trade-up market in the valley, which consisted of larger tract and custom homes. Since late 1989, housing construction in general has slowed considerably, due to rapid regional increases in housing costs. This has resulted in, what is believed will be, a short term deflation of housing prices, with the trade-up market suffering more than the entry level home market. In the long run, however, it is anticipated that home prices will continue to increase, following regional trends. While prices of

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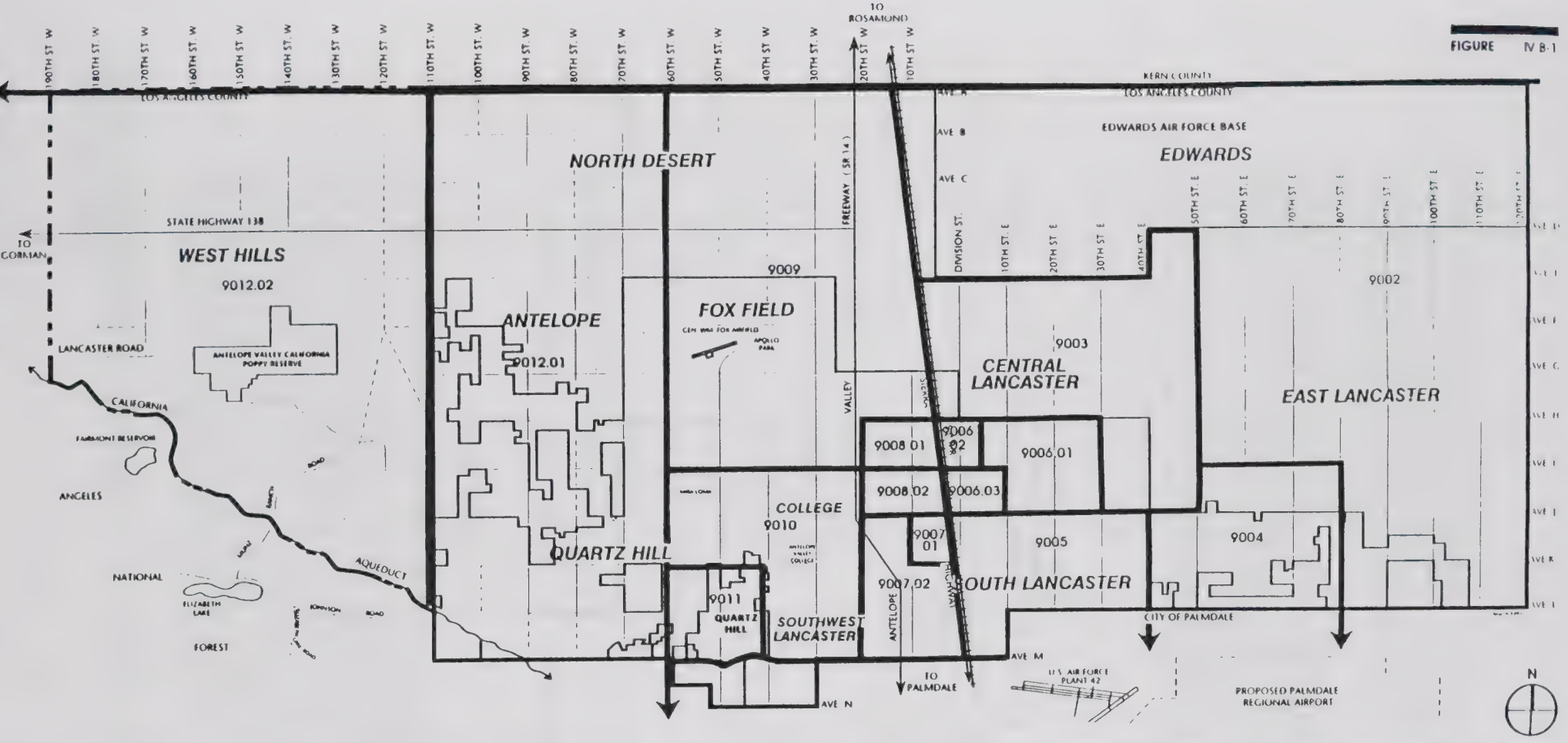
[1] Updated information on housing prices is contained in the Adequate Sites Analysis section of the Housing Element.

FIGURE IV B-1



CENSUS TRACTS

PLANNING NETWORK

CENSUS TRACT BOUNDARY

CITY OF LANCASTER
GENERAL PLAN

SOURCE: Thomas Brothers Guide for Los Angeles County, with Census Tracts, 1990.

homes in the Valley are predicted to remain substantially below those of the Los Angeles metropolitan area, at some point they may reach a level which will place them beyond the means of the first-time buyer. If this were to occur, it could signal the beginning of the growth of the Valley's long dormant condominium market as a new source of affordable housing.

One recent result of rapid housing price increase has been the growth of a new first-time buyer single family market in the Rosamond area, which is located approximately ten miles north of Lancaster in southern Kern County. Single family home prices in Rosamond are substantially below those of the Lancaster and Palmdale area. The Rosamond market is composed of young families who work in Palmdale or Lancaster, as well as workers who commute to the Los Angeles area for employment. Rosamond is approximately 70 miles north of the San Fernando Valley, which is evidence of the distance that people are willing to commute to work in order to own a single family home.

Table IV-B-4
New And Used Home Sales Prices
(Listings that went off market between July 1989 & January 1990)

	WESTERN LANCASTER[1]		EASTERN LANCASTER[1]	
	Average Price Sold	Number Sold	Average Price Sold	Number Sold
All Residential	$ 130,937	349	$ 120,732	279
2 or Fewer Bedrooms	$ 87,022	29	$ 95,459	22
3 Bedrooms	$ 122,775	223	$ 120,424	169
4 Bedrooms	$ 158,395	94	$ 127,100	85
5 or More Bedrooms	$ 165,000	3	$ 129,000	3
All Townhouses and Condos	$ 77,802	31	$ 61,544	19
2 Bedrooms	$ 80,012	22	$ 53,180	11
Mobile Homes	$ 30,500	3	$ 21,760	45

Source: Multiple Listing Service, Online Market Statistics

1 The dividing line between Western and Eastern Lancaster is the Antelope Valley Freeway (SR-14).

d. New Home Prices

Sales prices in the Antelope Valley remained fairly stable for new detached and attached homes from fall 1989 to spring 1990, dropping slightly in the summer 1990. Most of these changes in the Antelope Valley reflect prices for detached units, in that attached products accounted for less than 3 percent of total sales. The average base price of new homes sold during the summer quarter in the North Los Angeles market area was $178,086. The average price of all sales in the Antelope Valley was $158,636, or $10,028 lower than last quarter (see Table IV-B-5). The average price in Lancaster dropped by about $3,000 to $152,136, which was considerably lower than the average price in Palmdale of $178,012. Table IV-B-6 examines the price, approximate square footage, and value ratio of eleven developments in the City of Lancaster.

Table IV-B-5
Sales[1] Summary for Antelope Valley

Market Areas	Attached				Detached				Total			
	# Active Dev.	Avg. Sales P/Week P/Dev.	Total Qtrly. Sales	Avg. Sales Price	# Active Dev.	Avg. Sales P/Week P/Dev.	Total Qtrly. Sales	Avg. Sales Price	# Active Dev.	Avg. Sales P/Week P/Dev.	Total Qtrly Sales	Avg. Sales Price
Antelope Valley												
Lancaster	1	0.31	4	$108,400	63	0.21	135	$153,075	64	0.21	139	$152,136
Palmdale	1	1.15	15	$115,190	76	0.37	345	$180,052	77	0.38	360	$178,012
Rosamond	0	0.00	0	0	9	1.66	162	$111,136	9	1.66	162	$111,136
TOTAL	2	0.73	19	$113,492	148	0.38	642	$159,690	150	0.38	661	$158,636

Source: The Siracusa Company, Summer 1990.

1 Sales: any process which removes a unit from the market place, be it in the form of an accepted reservation or an accepted offer to purchase. This does not necessarily constitute a closed escrow. Average prices do not incorporate negative sales (cancellations).

Table IV-B-6
New Single Family Detached Home Data by Price, Approximate Square Foot, and Value Ratio

Price	Approx.Sq.Ft.	Value Ratio
$119,950	1,437	76.83
$126,990	1,696	84.78
$133,900	2,154	59.81
$144,950	2,238	75.31
$153,950	2,082	82.10
$163,950	2,227	72.04
$165,900	2,400	74.95
$174,950	2,378	93.69
$185,990	2,610	77.67
$199,900	2,155	88.83
$255,000	2,932	98.93

Source: Continental Land Title Company, Market Bulletin, Summer 1991.

e. Rents

In order to update 1980 census information, a brief rental survey was conducted in 1988 using rental advertisements in the local newspaper. This information is presented on Table IV-B-7[1]; however, it cannot be viewed as representative of the overall rental market. The data indicates that single family residences (which make up a significant portion of the City's rental units) rent for more than apartments, and that there is a lack of available apartment units larger than two bedrooms. This appears to point to a need for larger size multiple family rental units with more than two bedrooms in order to provide a greater variety of choice in the rental market of the City.

Table IV-B-7
Average Rent Levels, 1989

Unit Size (No. of Bedrooms)	Apartments Unfurnished	Single Family Residence Unfurnished
1	$411	$407
2	$463	$597
3	N.A.	$730
4	N.A.	$818

Source: City of Lancaster, Department of Community Development.

[1] Updated information for rents for multiple family housing is contained in the Adequate Sites Analysis section of the Housing Element.

f. Mobile Homes

Traditionally, local governments were reluctant to allow mobile home development for a number of reasons. Typical older mobile home developments were not aesthetically attractive, and were not well planned. Mobile homes historically had not been subject to property taxes, and instead, had been registered and taxed as vehicles by the State Department of Motor Vehicles, thereby reducing their economic desirability to cities.

Mobile homes are no longer classified as vehicles. They are now considered to be "transportable structures", and are subject to property taxation, thereby eliminating a major reason for the reluctance shown by many jurisdictions to permit mobile homes.

State legislation now requires that localities make provisions for the placement of mobile homes on permanent foundations on individual, single family zoned lots. State legislation (SB 2827) approved in 1988 deleted provisions of State law which formerly allowed local jurisdictions to restrict mobile homes to specific residential zones. In effect, this legislation requires jurisdictions to permit mobile homes in all residential zones. It does allow localities to impose development standards requiring mobile homes on single family lots to meet the same site development and design standards as conventional housing within the same zone. Despite this legislation most mobile homes in Lancaster are located in mobile home parks.

One important characteristic associated with mobile homes is their affordability. During May 1992, staff conducted a survey of mobile home dealerships within the Antelope Valley to determine the price and monthly mortgage payment on a standard double-wide two bedroom unit with no upgrades. Of the dealerships who responded, the price ranged from $35,000 to $47,000, with monthly payments ranging from $295 to $486 per month. In most cases, the mortgage payment constitutes only a portion of the monthly cost for the mobile home. The cost for the rental space must also be added. Staff obtained this information by surveying rents within mobile home parks in Lancaster (Table IV-B-8). Of the twenty-three parks surveyed, the monthly rents ranged from $172 per month to $350 per month with the average rent at $225 per month. Adding the average monthly rent to the mortgage payment produces a range of $520 to $711 per month for a two bedroom mobile home. This figure places mobile homes in Lancaster within the very low to lower income limit classification (see Table HE-F-5 of the Housing Element)[1].

g. Vacancy Rates

Vacancy, or the rate of occupied versus unoccupied units, is a widely used indicator of the relative health of housing markets. A vacancy rate of four to six percent in a mature community generally indicates a fairly stable housing market, while a slightly higher rate of five to seven percent is considered healthy for a growing community. Lower rates imply a market in which housing demand exceeds supply, while higher rates indicate an excess supply of units. Higher vacancy rates can occur for several reasons, such as rapid residential development which exceeds the rate of population growth, widespread economic distress, large numbers of substandard units, or a large amount of seasonal units.

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[1] The Department of Finance indicates that as of January 1, 1992, mobile homes comprised 10.5% of the total housing inventory in Lancaster. Therefore, they represent an important component of the affordable inventory in Lancaster.

Table IV-B-8
Mobile Home Space Survey, May 1992

#	Park Name	Avg.Rent /Space	# of Spaces	% of Total Spaces	# of Spaces Occup.	Vac. Rate
1	Air Lane	NA	NA	NA	NA	NA
2	Bel-Air Estates	$350	130	4.5%	126	3.07%
3	Blue Skies	$211	101	3.5%	99	1.98%
4	Brierwood	$258	309	10.7%	305	1.29%
5	California	$249	148	5.1%	147	0.68%
6	Chapparal East	$310	94	3.2%	84	10.64%
7	Clear Skies	$202	47	1.6%	47	2.13%
8	Crestview	$190	110	3.8%	110	0.00%
10	Desert Paradise	$222	50	1.7%	42	16.00%
11	El Rancho	$172	75	2.6%	75	0.00%
12	Four Winds	$195	72	2.5%	72	0.00%
13	Friendly Village	$268	464	16.0%	464	0.00%
14	Golden Sands	$185	152	5.2%	146	3.95%
15	Hacienda	$230	264	9.1%	264	0.00%
16	Johnson's	$230	87	3.0%	85	2.30%
18	Lido Trailer	$250	55	1.9%	52	5.45%
19	Mik-lis	$194	40	1.3%	40	0.00%
21	Ranch Inn	$175	36	1.2%	36	0.00%
22	Rancho Mirage	$235	290	10.0%	290	0.00%
23	Shady Elm	$189	52	1.8%	51	1.92%
24	Sherwood	$235	185	6.4%	185	0.00%
25	Western Skies	$228	60	2.1%	59	1.67%
26	Whispering Elm	$175	78	2.7%	77	1.28%
	Average	$225	132		130	2.42%
	TOTAL		2,899		2,855	

Source: Interviews with Mobile Home Park managers/owners, May, 1992.

According to California Department of Finance numbers, the vacancy rate in Lancaster has varied widely during the 1980s, from a low of 3.8 in 1982 to a high of 10.6 in 1990 (see Figure IV-B-2). During the 1980s, there were greater fluctuations in Lancaster than the County of Los Angeles. In Los Angeles County, the vacancy rate varied very little, from a high of 4.4 in 1980 to a low of 3 5 in 1984 and 1985. Growing areas, such as Lancaster, often have higher vacancy rates than older established cities, such as those in the Los Angeles basin, due to the higher inventory of new housing. New units are often vacant for a time before occupancy, and are counted as vacant units. The 1990 rate of 10.6 percent may be elevated due, in part, to the community's rapid growth over the past two years and efforts by local developers of single family detached units to stay ahead of demand. By the middle of 1989, a general slow down in homes caused a showing of single family home sales in the Antelope Valley. The result was a large inventory of unsold units, both new and used, which is reflected by the high vacancy for 1990.

The Department of Finance numbers do not break down vacancy rates by unit type, therefore the "Los Angeles-Long Beach SMSA Housing Vacancy Survey" for six years was used, although the total vacancy rates was substantially different than those cited by the California Department of Finance (see Table IV-B-9). In 1983, multi-family units and mobile home vacancies were higher than both the city-wide average and single family units. This trend did not continue, and, from 1984 through 1986, vacancy rates for single family and multi-family units were very close. By 1988, however, vacancy rates for multi-family units had jumped to a high of 11.8 percent. This high percentage is most likely due to the large number of multi-family units that were built in the Antelope Valley during the mid-1980s. Unfortunately, more recent data on the differences between multiple and single family units is not available.

Table IV-B-9
Lancaster Area Housing Vacancy Survey[1]
Overall Vacancy Rate

Type of Unit	1983	1984	1985	1986	1987	1988
Single Family	1.8%	1.8%	1.2%	4.3%	2.7%	3.1%
Multi-Family	4.3%	1.0%	1.2%	4.5%	NA[2]	11.8%
Mobile Homes	7.7%	0.6%	1.4%	2.7%	1.7%	7.3%
All Units	2.9%	1.6%	1.3%	4.2%	2.0%[3]	5.9%

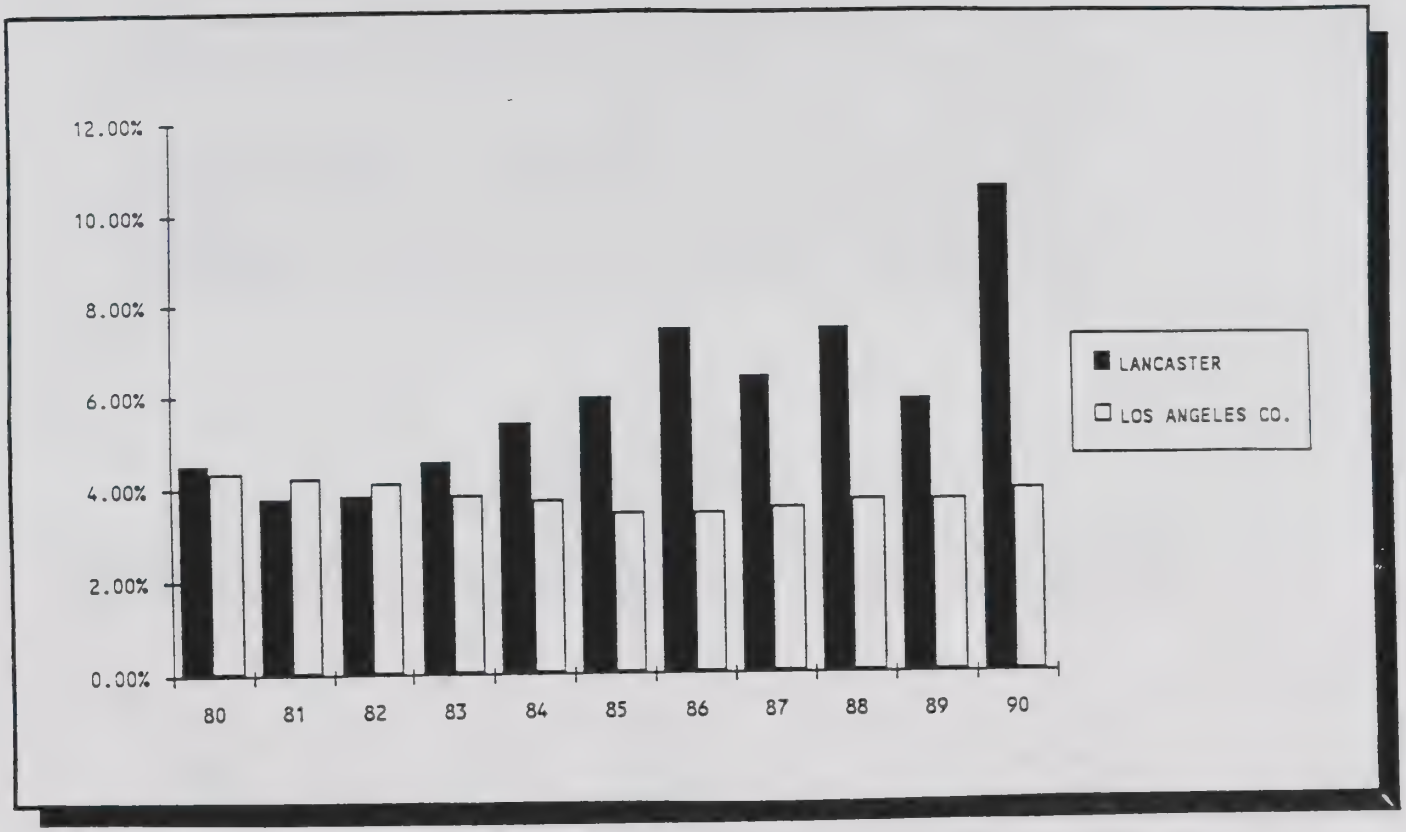
Source: "Los Angeles-Long Beach SMSA Housing Vacancy Survey," 1983, 1984, 1985, 1986, 1987, and 1988 by the Federal Home Loan Bank of San Francisco.

1 The survey covers an area larger than the City boundaries. It is, however, accurate enough for determining vacancy trends.

2 Not available.

3 Artificially low due to the absence of multi-family vacancy rate.

FIGURE IV-B-2



Source: California Department of Finance, E-5 Reports.

PLANNING NETWORK

HISTORICAL VACANCY RATES

CITY OF LANCASTER
GENERAL PLAN

By the end of the Summer Quarter 1990, new housing inventory[1] in the Antelope Valley totaled 2,460 units (Continental Land Title Company, 1990). Of these, 1,115 units were located in Lancaster, 1,235 were located in Palmdale, and 110 were located in Rosamond. Based on Summer Quarter sales trends, this represents 85 weeks of inventory in Lancaster, but only 7.4 weeks in Rosamond. As of the Summer Quarter, Palmdale had 43 weeks of housing inventory available for sale.

h. Household Characteristics

Identifying local housing trends involves analyzing such characteristics as household size, renter versus owner status, ethnicity of the area, the amount of substandard housing, overcrowding, and age and sex of residents.

Age and Sex Distribution The age-sex distribution for 1990 in Lancaster is shown in Tables IV-B-10 and 11 (which are taken from the Estimated Population Characteristics Table in the Population section of this document). Table IV-B-10 shows that 29.3 percent of the City's residents are under 18 years of age, while 10.5 percent are within the 18-24 age bracket. People between the ages of 25-44 make up over 31.1 percent, while 17.8 percent of the City's residents are over 55 years of age.

Table IV-B-10
City of Lancaster
Age Distribution (1990)

Age Distribution	Number	Percentage
0 - 5	9,583	10.8
6 - 17	16,415	18.5
18 - 24	9,317	10.5
25 - 34	14,641	16.5
35 - 44	12,955	14.6
45 - 54	10,027	11.3
55 - 64	7,808	8.8
65 +	7,986	9.0
TOTAL POPULATION	88,732	100.0

Source: Department of Finance projected total population using Urban Decision Systems, Inc. estimated percentages.

[1] Inventory includes new dwellings released for sale, but not yet sold.

It is important for planning social services and housing in the City over the next two decades to analyze the population of the four age groups. The large percentage of elderly persons indicates the need to ensure that there is an adequate supply of affordable housing and services for this group within the City. The substantial percentage of persons under the age of 18 and between the ages of 25-44 suggest the presence of many young families with children in the City. The 25-44 age group is also the range in which most households are formed. The presence of the large percentage of children may also indicate a need for child care facilities.

It is also important to note that the percent of the City's population is within the 18-24 age group. This represents a component of the population of child bearing age who will require housing in the future. This age group, coupled with the 25-44 age group, indicates that a combined 41.6 percent of the City's population is either in or near to the household formation age. The City will need to ensure a future housing stock that will be sufficient to accommodate their needs.

Table IV-B-11 shows that there are more females than males in the 65 and older age groups. This preponderance of females in the elderly population indicates that females tend to live longer than males, and is identical to the national trends.

Table IV-B-11
City of Lancaster
Sex Distribution (1990)

	MALES		FEMALES	
Age Distribution	Total	Percent	Total	Percent
0 - 20	14,859	34.6	14,926	32.6
21 - 44	16,148	37.6	17,032	37.1
45 - 64	8,718	20.3	9,066	19.8
65 +	3,221	7.5	4,762	10.4
TOTAL	42,946	100.0	45,786	100.0

Source: Department of Finance projected total population using Urban Decision Systems, Inc. estimated percentages.

Note: The General Plan will be updated with 1990 Census data when the information becomes available.

Household Size According to the California Department of Finance, the average size of a household in Lancaster remained fairly stable during the past decade, declining slightly from 2.75 persons per unit in 1980 to 2.65 persons in 1990. Preliminary Census figures, however, have estimated this figure to be 2.81. The Department of Finance household size estimate is lower than the present County average of 2.8 persons, and is substantially lower than a number of other growing Los Angeles County communities, some of which average 4.0 persons per household or higher. This lower household size is reflective of Lancaster's status as a city of young families. While the overall household size in the City may be presently lower than County figures, the County grew five percent from 1980 to 1989, while Lancaster recorded an eight percent increase. The Draft Palmdale General Plan estimates an average household size of 2.7 persons in 1989, which is slightly higher than the 2.65 persons presently estimated by the State Department of Finance for Lancaster.

A continuing decline in household size is a national trend. Demographic changes, which include high divorce rates, later marriages and fewer children, account for a large part of this decline. As noted above, there is a wide discrepancy in the average household size for Lancaster reported by the California Department of Finance and Preliminary 1990 Census data. If the Department of Finance is correct, it can be concluded that the past trend of smaller household sizes is continuing. However, if Preliminary 1990 Census data is correct, that conclusion can not be made. A review of the age breakdown of Lancaster residents and of new household information indicates that average household size will soon be on the rise in Lancaster. New residents in Lancaster are generally young adults and young families with preschool children. It is expected that, as Lancaster's overall population gets younger as a result of this influx, there will be a significant increase in the number of children; the Antelope Valley edition of the Daily News has reported a recent surge in the local birth rate.

Owner/Renter Status Lancaster has a relatively high ratio of owner-occupied to renter-occupied housing units. Of all housing units in Lancaster, 63.3 percent are owner-occupied, compared to Los Angeles County with 48.3 percent (see Table IV-B-12). In Lancaster, the percentage of owner-occupied units decreased between 1980 and 1989, from almost 70 to just over 63 percent. However, most of this change occurred from 1985 to 1988, during a period of significant apartment building. Since 1980, the County-wide ratio of home ownership has stayed essentially the same, at roughly 48 percent. It is anticipated that, due to the single family housing boom which occurred in the Antelope Valley in 1988 and 1989, present ownership rates are higher than those reported in 1988. This continuing need for housing by people working in Los Angeles that are seeking local affordable housing should maintain or increase the level of owner-occupied housing compared to present levels.

Ethnicity The percentage of all minorities in the City population has increased steadily since 1980, from 14.2 percent to 21.1 percent in 1990, as estimated by the State Department of Health Services. The largest minority group is Hispanic, representing 7.2 percent of the City's population in 1980, increasing to over 15.2 percent by 1990 (see the Population Characteristics Section). Population data suggests that the City will continue to become more heterogeneous. As this trend continues, there may be a need to ensure that minorities are not victims of housing discrimination. Although ethnicity is a factor in determining housing need, income level is a greater factor.

Table IV-B-12
Housing Tenure

	1980					
	City of Lancaster			Los Angeles County		
	Number	% of Total Units	% of Occupied Units	Number	% of Total Units	% of Occupied Units
Total Housing Units	18,127			2,855,578		
Total Occupied Units	17,312	95.5		2,490,064	87.29	
Owner Occupied	12,054		69.6	1,207,681		48.5
Renter Occupied	5,258		30.4	1,282,383		51.5

	1989					
	City of Lancaster			Los Angeles County		
	Number	% of Total Units	% of Occupied Units	Number	% of Total Units	% of Occupied Units
Total Housing Units	32,479			3,131,076		
Total Occupied Units	30,552	94.1		3,014,287	96.3	
Owner Occupied	19,339		63.3	1,455,901		48.3
Renter Occupied	11,213		36.7	1,558,386		51.7

Source: 1980 Census, California Department of Finance, Urban Decision Systems, Inc. (1990).

Household Income The median income in Lancaster has historically been higher than the County median. Table IV-B-13(a) shows that, for 1990, 40 percent of Lancaster households were in the $35,000 to $74,000 income bracket, while only 32 percent of the County were in this bracket. Projections for 1994 indicate that this difference will continue to increase (see Table IV-B-13(b).

Comparisons of various income levels between Lancaster and Los Angeles County can also be gleaned from Table IV-B-13(a). For example, in Lancaster, there are fewer households in the lowest income groups and more households in the middle and upper income groups than in the County, while there was a slightly higher percentage of households in the highest income group in the County.

Table IV-B-13(a)
Household Income Range
(City of Lancaster, Los Angeles County)

	1990			
	CITY OF LANCASTER		LOS ANGELES COUNTY	
Income Group	Number of Households	Percent	Number of Households	Percent
$ 0 - 9,999	4,346	11.9	485,644	15.3
$ 10,000 - 14,999	2,630	7.2	307,892	9.7
$ 15,000 - 24,999	5,588	15.3	555,475	17.5
$ 25,000 - 34,999	5,187	14.2	444,380	14.0
$ 35,000 - 49,999	7,268	19.9	517,385	16.3
$ 50,000 - 74,999	7,378	20.2	498,340	15.7
$ 75,000 and Up	4,127	11.3	365,026	11.5
TOTAL HOUSEHOLDS	36,524		3,174,142	

Source: California Department of Finance, 1990 Population using 2/90 Urban Decision Systems projected percentages.

Table IV-B-13(b)
Median Household Income Projections
(City of Lancaster, Los Angeles County)

Median Income	1980	1989	1994
City of Lancaster	$ 20,189	$ 35,961	$ 45,456
Los Angeles County	$ 17,563	$ 30,214	$ 37,457
Percent Difference	15.0	19.0	21.4

Source: Urban Decision Systems, 1990.

Information regarding the geographic location of households within certain income ranges in Lancaster can be examined using census tract level data. According to data compiled from the 1980 Census and the SCAG 1988 Regional Housing Needs Assessment, the census tracts with the largest percentage of their households in the low to very low income range were Tracts 9006.02, 9006.03, 9008.01, and 9008.02 (see Table IV-B-14(a)). All four of these adjacent tracts contain older neighborhoods. In particular, Tract 9008.02 and 9006.03 include the original City core area, which contains concentrations of some of the oldest housing in the City (see Figure IV-A-1).

The tracts containing the highest percentages of their households in the high income range were 9005, 9006.01, and 9010. Tracts 9005 and 9006.01 encompass a portion of central Lancaster which contains a significant percentage of the City's population and, therefore, a mix of housing types and costs. Tract 9010 encompasses a large area of western Lancaster near Quartz Hill, where some of the most expensive residential properties are located. Table IV-B-14(a) further indicates that moderate income households were distributed more evenly throughout the City's census tracts, with the most significant concentrations again found in Tracts 9008.01 and 9008.02.

Table IV-B-14(b) contains other income level characteristics by census tract. When the information in this table is compared to that contained in Table IV-B-13(a) for the tracts identified above as having high percentages of households in the low income range, some correlations are apparent. for example, all of these tracts contained percentages of households with social security and/or public assisted income which approximated or exceeded the average percentage for the City as a whole. Moreover, three of these tracts (9006.02, 9008.01, and 9008.02) contained percentages of renter households with below poverty income levels that exceed the average percentage for the overall City.

Table IV-B-14(a)
1988 Household Income by Census Tract

	VERY LOW		LOW		MODERATE		HIGH		TRACT TOTAL	
Tract No.	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
9003	37	14.8	29	11.7	91	35.9	92	36.6	249	100
9005	481	12.9	481	12.9	705	18.9	2,058	55.2	3,725	100
9006.01	242	14.9	77	4.8	255	15.7	1,049	64.5	1,623	100
9006.02	389	26.7	220	15.1	338	23.2	510	35.0	1,457	100
9006.03	611	18.3	424	12.7	637	19.1	1,668	50.0	3,340	100
9007.01	472	16.5	357	12.5	626	21.9	1,401	49.0	2,856	100
9007.02	498	17.4	366	12.8	493	17.3	1,503	52.6	2,860	100
9008.01	621	18.3	529	15.6	814	24.0	1,428	42.1	3,392	100
9008.02	1,357	29.7	681	14.9	768	16.8	1,769	38.7	4,575	100
9010	451	11.4	368	9.3	712	18.0	2,427	61.4	3,958	100
TOTAL	5,159	18.1	3,532	12.6	5,439	19.4	13,905	49.6	28,035	100

Source: 1980 Census, Urban Decision Systems, Inc.

Income Categories are defined as a percentage of Los Angeles county Median Income ($28,500)

Very Low	0% - 50%	$0 - $14,250
Low	51% - 80%	$14,535 - $22,800
Moderate	81% - 120%	$23,085 - $34,200
High	Above 120%	$34,200 and Above

Table IV-B-14(b)
Tenure and Income Characteristics
By Census Tract (1980-1989)

Census Tract	Households 1989	Percent of Households with Social Security Income 1980[1]	Percent of Households with Public Assistance Income 1980[1]	Percent of Owner Occupied Units below Poverty Level 1980[1]	Percent of Renter Occupied Units below Poverty Level 1980[1]
9003.00[1]	702	34.4	6.6	10.7	na
9005.00[1]	4,945	16.4	6.0	4.8	15.0
9006.01	1,954	23.2	13.0	4.5	22.4
9006.02	2,343	26.3	9.5	4.8	26.0
9006.03	3,453	20.5	11.5	2.5	13.3
9007.01	1,785	15.6	8.6	5.6	14.7
9007.02	2,121	20.0	11.8	3.8	9.0
9008.01	2,143	20.0	8.1	7.0	23.2
9008.02	2,999	30.2	12.4	4.8	20.6
9009.00[1]	453	na	na	na	na
9010.00[1]	6,723	15.1	11.2	5.2	16.4
Lancaster Total	29,006	21.1	10.0	5.1	17.2

Source: 1980 Census, Urban Decision Systems, Inc.

1 Defined in 1980 Census as a tract split by the boundary of a place of 1,000 or more people.

Low income areas require special attention in terms of housing because lower income groups face many housing problems. For instance, they may live in older buildings that require repairs for which they do not have adequate income to complete. In addition, low income households often are forced to spend a greater proportion of their income on housing.

The above data appear to identify locations within the City which contain concentrations of certain household income characteristics. However, the fact that it is based primarily on 1980 census data may mean that it does not accurately reflect current conditions.

Income Spent for Housing An important factor in determining existing housing need is the affordability of housing. One measure of housing affordability is the percentage of a household's gross income which is needed to meet monthly mortgage payments. A criterion used by the state, SCAG, and HUD to define affordable housing is that costs should not exceed 30 percent of gross income on housing (either owner-occupied or rentals). Household income estimates for Lancaster and Los Angeles County are presented in Table IV-B-13(b)).

There is an inverse relationship between income and the percentage of income spent for housing. Low income households generally pay a higher percentage of their income for housing than do high income households. In addition, renters, particularly among the lowest income ranges, tend to pay a higher percentage of their income for housing than owners. The households that pay more than 30 percent of their income toward a house payment are identified as those that have an existing need for affordable shelter (see Table IV-B-15). This figure does not include those lower income households who do not pay an inordinate amount of their income for shelter, nor does it include homeless people or those who live in overcrowded and substandard housing. Table IV-B-16 shows the maximum rents that could be charged to very low and low income households without exceeding 30 percent of gross income[1].

Table IV-B-15
Housing Overpayment By Low and Very Low Income Households (1988)
City of Lancaster

	Number		Percent	
Total Households	**28,036**			
Lower Income Households	8,691			
Lower Income Households Overpaying for Housing	3,807		40.3%	
Very Low Income		2,517		48.8%
Low Income		1,292		36.6%
Renter Households Overpaying for Housing	2,620		49.0%	
Very Low Income		1,757		51.2%
Low Income		863		45.1%
Owner Households Overpaying for Housing	1,189		35.5%	
Very Low Income		760		44.0%
Low Income		429		26.5%

Source: SCAG Regional Housing Needs Assessment for Southern California, June 1988.

Table IV-B-16
Low and Very Low Income Rental Limits[1]

	SRO[2]	Studio	1 Bedrm.	2 Bedrm.	3 Bedrm.	4 Bedrm.	5 Bedrm.
Low-Income Maximum Month Rent	$255	$409	$467	$525	$584	$656	$730
Very-Low Income Maximum Month Rent	$255	$341	$389	$438	$486	$547	$608

Source: U.S. Department of Housing and Urban Development.

1 Based on County Median Income of $28,500

2 Single Room Occupancy Hotel

1 Updated information on income limits as per the U.S. Department of Housing and Urban Development (HUD) is contained in the Adequate Sites Analysis section of the Housing Element.

Table IV-B-17 indicates that, in 1988, there were 8,691 low and very low income households in Lancaster, and 19,345 households were moderate and high income. A majority of the low and very low income households, 54.2 percent and 66.5 percent, respectively, were renters ,while a majority of moderate and high income households were owners, 61.7 percent and 82.2 percent, respectively.

Affordability problems in the housing market reflect the rising disparity between housing costs and incomes. This is particularly true in California, where, between 1970 to 1985, there has been a 337 percent increase in housing costs, as compared to a 182 percent increase in real income over the same period. In metropolitan Los Angeles, the disparity is now so great that a significant percentage of potential buyers are being priced out of the market. Rising demand, general inflation, tax policies, shortage of developable residential land, and escalating land costs all contribute to a tight housing market, with subsequent skyrocketing housing prices in metropolitan Los Angeles. Having been priced out of the housing market, many potential first-time home buyers still found affordable housing. Lancaster and Palmdale are two outlying cities where the median house price is still more than 40 percent below the average price of homes in the Los Angeles metropolitan area.

However, there are indications that even Lancaster and Palmdale are now going through a rapid market transition that is forcing prices up past the affordability of median income earners.

It is, therefore, important for the City to consider types of housing units that are "affordable" (i.e. housing costs that would not exceed 25 to 30 percent of a household's income), especially units that are affordable to lower-income households.

As shown in Table IV-B-15, a significant portion of very low and low income households within the City of Lancaster are currently paying more than 30 percent of their income for housing. This indicates that, although the local housing market is much less expensive than Los Angeles County in general, there is a significant local population for whom housing is still unaffordable.

Table IV-B-17
Income Categories By Tenure 1988

Category	Renter		Owner		Total		Percent
	No.	Pct.	No.	Pct.	No.	Pct	
Very Low	3,431	66.5%	1,728	33.5%	5,159	18.4%	100.0%
Low	1,914	54.2%	1,618	45.8%	3,532	12.6%	100.0%
Moderate	2,072	38.3%	3,339	61.7%	5,411	19.3%	100.0%
High	2,480	17.8%	11,454	82.2%	13,934	49.7%	100.0%
TOTAL	9,897		18,139		28,036		100.0%

Source: 1980 Census and Regional Housing Needs Assessment, June 1988

i. Condition of Existing Housing

The condition of existing housing has an impact on the overall perceived quality of particular neighborhoods or housing tracts, and can significantly affect resale of existing housing units. The most common measures of these conditions are the amounts of units considered "substandard", or overcrowded.

Substandard Housing A substandard unit is defined as a unit not meeting the City's building code and/or HUD's section 8 housing standards. An estimate of the number of unsound housing units is an important factor in defining the current housing supply. Some portion of the current supply is in need of rehabilitation or replacement, due to inadequate utilities (electrical, plumbing, heating and cooling, etc.), insufficient insulation, insufficient kitchen or bathroom facilities, or the lack of maintenance (leaking roof, broken windows, etc.). According to data from the U.S. Department of Housing and Urban Development (HUD), there are only 2,550 substandard dwelling units in the City, which represents a small percentage (8.4 percent) of the City's total housing stock of 30,306 units in 1988. Overall, a far greater number of rental units (2,281) are substandard than are owner units (269). Out of the total substandard units (2,550), 2,527 units are suitable for rehabilitation. It is estimated that 1,943 of the substandard rental units (85.2 percent) and 125 of the substandard owner units (46.5 percent) are occupied by lower income households.

To further evaluate the local housing conditions, a windshield survey was conducted in the Fall of 1988 by City staff. A random survey of 88 households (67 single family and 21 multi-family) was conducted based on a total population size of 30,306 housing units. The units identified in the survey were placed into the following categories:

Good:	Recent construction and/or no visible exterior defects
Minor[1] Repair:	Paint Window Rehabilitation Minor plaster/siding repair Minor roof repair Removal of trash
Major[1] Repair:	Foundation/structural Major roof repair Repairs needed to avert further damage
Dilapidated:	Economically more feasible to replace than to rehabilitate because of excessive repairs needed

The survey indicates that, out of the total of 88 houses, 90.9 percent (80 units) were in good condition; 8.0 percent (7 units) would need minor repairs; 1.1 percent (1 units) would require major repair, and none were found to be in a dilapidated condition (see Table IV-B-18). The data reflects that the City's overall housing stock is in relatively good condition, which corresponds closely with HUD figures for the entire City.

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1 Buildings needing minor or major repairs could be rehabilitated.

Table IV-B-18
Housing Condition Survey

Type of Condition	Number of Units	Percentage of Units
Good Condition	80	90.9%
Minor Repair	7	8.0%
Major Repair	1	1.1%
Dilapidated	0	0.0%
TOTAL	88	100.0%

Source: Lancaster Department of Community Development.

An important factor in determining both the present and expected future housing stock conditions is the age of the units. The City has a relatively young housing stock, with over 63 percent of the housing units being less than 20 years old (see Table IV-B-19). A substantial portion (35.4 percent) of the City's housing stock was constructed between 1940 and 1970. Significant construction (44.2 percent) also occurred between 1980 and 1989. The data also show that a higher percentage of renter units (15.5 percent) were built prior to 1950 than were owner units (4.8 percent). This tends to reflect that renters are more likely to live in older housing than owners.

Table IV-B-19
Age of Housing Units (1989)

	Units	Percent
Built Before 1940	520	1.6%
Built Between 1940 and 1970	11,497	35.4%
Built Between 1970 and 1980 (10 to 20 Years Old)	6,106	18.8%
Built Between 1980 and 1989 (Less Than 10 Years Old)	14,356	44.2%
TOTAL	32,479	100%

Source: 1980 Census, and 1989 units from Los Angeles County Regional Planning.

Housing location is segregated by age of structure, with the oldest housing concentrated close to the downtown core and the newest housing on the periphery of the urban core. For instance, houses built over forty and fifty years ago tend to be confined within the two square miles of land bounded by Avenue I to the north, 10th Street East to the east, 10th Street West to the west, and

Avenue J to the south. Although the greater portion of the City's housing stock is less than 20 years old and is in good condition, by the year 2000, over 10,000 dwelling units will be more than 20 years old. It is likely that rehabilitation and home improvement programs will become increasingly important in converting the existing housing stock. The need for these programs is anticipated to be most acute in relation to older housing inhabited by the elderly and by renters (see Table IV-B-20). This is because the elderly are generally associated with lower income levels and would be less likely to afford the cost of maintenance and repairs, while landlords of older rental housing are often unwilling to provide adequate maintenance to buildings which are already in a state of poor repair.

Table IV-B-20
Housing Stock Conditions, 10/1/88

Tenure Type	Standard Units		Substandard Units		Substandard Units Suitable for Rehabilitation		
	Occupied Units	Vacant Units	Occupied Units	Vacant Units	Occupied Units Total	Occupied Units Lower Income	Vacant Units
Owner	20,594	238	264	5	264	125	5
Renter	6,546	378	2,158	123	2,135	1,943	123
Total	27,140	616	2,422	128	2,399	2,068	128

Source: City of Lancaster Department of Community Development

Substandard housing that is dilapidated beyond repair is usually demolished. Between 1982 and 1989, 104 building permits were issued by the City for demolition of single family homes, an average of 13 per year.

Overcrowded Units One way for households to cut housing and utility costs is by increasing the number of adults within a household who are willing to provide financial support. In many cities, this has resulted in extreme overcrowding and a subsequent deterioration of the quality of life within a community. The standard used to determine overcrowding is 1.00 persons per room. Housing with an occupancy of 1.01 to 1.50 persons per room is considered slightly overcrowded, and 1.51 persons per room or more is considered to be severely overcrowded.

The most recent data on overcrowding is from the 1980 Census, which identified 3.8 percent of all occupied units in Lancaster as slightly overcrowded. Based on this ratio, approximately 1,161 units (3.8 percent of 30,552) may be slightly overcrowded in 1989. This projection uses the same ratio because overcrowded households generally decline as vacancy rates go up. The 1980 Census also showed that 1.1 percent of all units were severely overcrowded. Using the same ratio found in 1980, 336 units may be severely overcrowded in 1989.

The highest percentage of overcrowded households within the City were renters, which reflects similar state and national figures. The majority of overcrowded households contain children under age 18. Overcrowding is not usually associated with the very lowest income households because those households are overwhelming one-person households, and by definition, one-person households can never be overcrowded.

To summarize, the City does not appear to have a serious overcrowding problem. In 1980, only about 3.8 percent of the City's households were considered overcrowded during the Census, compared to three times that rate (11.2 percent) for Los Angeles County for that same year. It is anticipated that the 1990 Census data will show similar trends.

j. Special Needs Households

A household is defined as a group of people, related or unrelated, living together in residence. In addition to the more typical two-parent households that may or may not have children, there are a variety of household types with unique needs that should be given special consideration, since they often find it difficult to obtain housing. These groups consist of the elderly, female-head-of-households, handicapped individuals, large families, minority households, military households, farmworker households, and the homeless.

Elderly-Headed Households Only nine percent of the Lancaster households have a member 65 years or older (Urban Decisions Systems, Inc.), as shown in Table IV-B-21. This figure is slightly lower than County figures, where 10.5 percent of the households include a person age or 65 older. Both County and the City increased their proportion of elderly residents between 1980 and 1989 by approximately one percent. Approximately 26 percent of the elderly within Lancaster are located immediately northwest of Sierra Highway and Avenue J (Census tract 9008.02), while the remaining elderly population is distributed fairly evenly throughout the City.

The Southern California Association of Governments has indicated that the population of senior citizens aged 65 and older is expected to double by the year 2010. This increase reflects the aging of the "baby boomers" across the nation, and extended life expectancy due to the advances in medicine.

Housing for the elderly is not only a physical, but a social planning issue. The elderly are largely dependent upon fixed incomes (pensions, social security, etc.), which are sensitive to increased housing costs. Elderly renters often must pay in excess of 30 percent of their income for housing. Elderly homeowners may have difficulty paying for their homes, even if they have small or no mortgage payments, as they may not be able to afford necessary repairs, taxes, or upkeep on their property.

The City's Housing Assistance Plan for 1988 indicated that elderly households constitute 14.8 percent of the City's lower income households. This means that a total of 508 households with persons 65 years of age or older would need housing assistance (Housing Assistance Plan, 1988-1991). Therefore, not only is housing required for the elderly, but affordable housing with services adapted to their special needs is necessary. The City can also support the rehabilitation of existing housing, as well as encourage the provision of shared housing opportunities.

Many elderly experience isolation when living alone. Projections based on the 1980 Census indicate that, of the 3,287 elderly households in Lancaster 40 percent were single-person households. Therefore, 1,188 elderly persons are projected to be living alone in the City of Lancaster in 1990. The physical disabilities that affect elderly persons can make living alone not only lonely, but dangerous. The elderly in various degrees of dependent living should have access to consumer and public services within approximately 2,000 feet of their homes. Housing specifically designed for the elderly should be permitted only in areas with adequate services, and with traffic and walkway regulations that support a pedestrian lifestyle and are accessible to the handicapped.

Housing sites for the elderly, shopping centers, and medical facilities should be connected by public transportation, as many elderly are unable, or no longer wish, to drive. Access to medical facilities is especially important, since the elderly, as a group, use health care services at three times the rate of the general population. Antelope Valley Transit is the primary mode of public transportation for elderly Lancaster residents. It provides commuter services, tour buses, regional, and local services. The regional (Antelope Valley) lines connect Lancaster to the Lake Hughes area to the west, and south to Pearblossom. Local routes are extensive on weekdays, but fairly limited on weekends. Since seniors often depend on public transportation, a survey to assess if their needs are being met by the current system may be needed.

The dramatic increase in the elderly population that will occur in Lancaster, and in all cities in the nation, indicates that attention be directed toward this special needs group. The need for skilled nursing facilities, nursing home care and home maintenance programs, in addition to shelter, are some of the services that will be necessary to accommodate the growing elderly population.

Housing for seniors consists of several distinct types, each meeting a unique set of shelter needs. These include: independent living, congregate housing, assisted living, convalescent care, and continuing care.

Independent living projects are projects and communities designed for senior citizens, which may include single family detached, condominium, and apartment housing types. Meals and other basic services beyond shelter, security, and recreational facilities are not provided. The market for independent living facilities include seniors who are in good health and seek a low maintenance, leisure-oriented lifestyle. Independent living projects are generally sited in the same manner as non-senior projects, but may often be appropriate at higher densities than non-senior projects.

The congregate housing environment consists of individual units within a multi-family structure, or complex, with areas for group socializing and dining. Individuals who live in this type of housing are generally self-sufficient, mobile, and require no special care. They have, however, chosen to have certain services provided for them. Congregate facilities generally feature security, on-call medical assistance, meal packages, periodic housekeeping, scheduled transportation, and social activities. Congregate living projects have many of the same characteristics as multi-family housing, and are often also located within commercial areas, due to the proximity of services for project residents.

The assisted living environment is designed for the more frail senior population. It is service-intensive, and includes social and support services. Assisted living combines a 24-hour nurse-monitored living environment, with assistance in daily living activities, such as dressing, bathing, grooming, hygiene, and self-administered, but supervised, medication. Emergency medical provisions,

utilities, meals, transportation, social and recreational activities are also provided. Assisted living environments have grown out of numerous studies that have shown that many persons now living in nursing homes do not require the intensive health care services provided by those institutions. Assisted living facilities have thus emerged as a more dignified and economical alternative for the frail elderly who require some assistance in daily living. Assisted living environments are similar in their locational requirements to congregate housing.

Extended care facilities are medical service-intensive facilities which integrate shelter, medical, nursing, psychological, and rehabilitation services for those requiring 24-hour assistance. They are similar in their locational requirements to hospitals.

Continuing care facilities are based on the concept of "lifetime occupancy," providing a range of living environments for seniors. Within a multi-building complex, continuing care facilities cover the continuum of care options from independent living to skilled nursing. Continuing care facilities can take on a number of different characters, depending upon their emphasis. Thus, a number of different physical settings might be appropriate for such projects

Female-Head-of-Households Approximately 9.3 percent of Lancaster households are headed by women (see Table IV-B-21). This is eight percent lower than the County's 30 percent, and may be due, in part, to the larger percentage of single-family housing in Lancaster and the influx of young families.

The City's Housing Assistance Plan (1988) estimated there were 1,913 female-headed households with dependent children in the City in 1985. By 1988, according to the report, there were 2,607 households of this type, representing a substantial 36 percent increase over three years (both of these estimates were based upon updates of the 1980 census). This is a reflection of many factors, such as the rising national trend in the divorce rate, the number of women who remain single and have children, and the increasing number of teenage mothers who keep their babies.

Female householder families are characterized by young females with low income levels, large families, overcrowding, and lower home ownership rates. Significant portions of their incomes are spent on housing (see Table IV-B-21). Consequently, female householder families need housing assistance, affordable housing, social services (such as child care facilities), housing located close to employment, areas for children to play, and public transportation.

Handicapped Households According to the City's Housing Assistance Plan (1988), in 1988 there were 485 households with handicapped individuals in Lancaster. Of these, 98 live alone, 274 are members of small families, 67 are part of large families, and the remaining 46 are elderly. Large families are classified as having five or more members, while small families have less than five members. Table IV-B-21 estimates that 4,138 individuals, or 11.3 percent of the City's population, are considered to be handicapped. Since questions regarding the handicapped were not included in the 1980 Census, these estimates were provided by the California Department of Rehabilitation. Some of the disabilities that define a handicapped member are loss or impairment of limbs, disabling disease or condition (such as high blood pressure), mental retardation, wheelchair use, or impairment of speech, hearing or sight.

The housing needs of the handicapped are generally related to affordability and access. Since lack of accessibility is the most common problem encountered by handicapped persons in regard to housing, California Title 24, Handicapped

Table IV-B-21
Household Characteristics (1990)
City of Lancaster

	CITY OF LANCASTER		LOS ANGELES COUNTY	
	Number	Percent[1]	Number	Percent[1]
Total Persons	88,732		8,769,944	
Total Persons in Households	86,679		8,600,300	
Total Number of Households	36,525		3,174,142	
Total Occupied Units	32,665			
Persons per Household	2.65[2]		2.82	
Number of Households With:				
Five or More Persons[3]	3,872	10.6%	330,111	10.4%
Female Family Head[3]	3,397	9.3%	380,897	12.0%
Handicapped Member[4]	4,138	11.3%	359,630	11.3%
Member 65 Years and Over	3,287	9.0%	333,285	10.5%
Member Under 18 Years	10,738	29.4%	803,058	25.3%

Source: 1990 DOF, Department of Finance

1 Factors from Urban Decision Systems projections based on 1980 Census.

2 Total persons in household divided by total occupied units.

3 Proportions from 1980 Census compiled by Los Angeles County Dept. Reg. Planning.

4 State Department of Rehabilitation, 1978 Survey; this figure to be used until 1990 Census data is available.

Access Code, regulates the accessibility and adaptability of all new multi-residential, commercial and industrial buildings to the handicapped. The incomes of these people may be limited, assuming they are able to live independently of group care facilities or extended families. Whether or not a handicapped person chooses to live independently, physical access is a major consideration in housing choice. Depending on the disability, handicapped individuals may require units with special counter heights, railings, ramps, maneuvering area, etc. Many of the requirements of the handicapped may also apply to some portion of the elderly population who suffer from lack of mobility.

Large Family Households Large family households are characterized as a special needs group because they require a greater number of rooms per dwelling unit to avoid overcrowding. A steady decline in household size since 1970 indicates an increase in one and two person households and a decrease in larger families. However, it is likely that the number of large families will increase as the population of the City continues to grow. In addition, the City's Housing Assistance Plan (1988) shows that 14.2 percent of the City's lower income households are large family households. As a result, a sufficient stock of larger, low income units will need to be maintained.

Minority Households The City does not presently contain a substantial minority population, although it is increasing. Minority families face a multitude of housing problems, including those of low income, low home-ownership rates, and substandard housing conditions. A large portion of their income is used to cover the cost of housing. The Housing Assistance Plan (1988) identified a total of 384 minority low income households that need housing assistance. Of this total, 48.9 percent are Hispanic, 27 percent are Black, 12.7 percent are Asian or other, and 11.1 percent are Native American. Minority families also have higher percentages of large households, and, therefore, experience the overcrowding that usually results.

Military Households Military households are a special needs group because of a lack of adequate military housing at Edwards Air Force Base and the limited housing allowance that military personnel receive. Information from the Edwards Air Force Base housing office indicates that currently there are a total of 2,177 housing units, including 188 trailer pads, on the base. Available housing is completely occupied. As a result, as of October 1990, 915 military personnel are living off-base in neighboring communities. The housing allowance for military personnel varies. For a colonel with sixteen years of service, housing allowance is $704.04, while, for enlisted persons, a sergeant with sixteen years receives a $402.90 housing allowance. Edwards Air Force Base conducted a study in 1985 on the number of military personnel that were renters versus homeowners (see Table IV-B-22). Although the raw numbers have changed since 1985, it is unlikely that the percentages have changed substantially.

Table IV-B-22
Military Personnel: Renters Versus Owners (1985)

	Total	Renters	Percentage	Owners	Percentage
Single Officers	85	75	88%	10	12%
Married Officers	158	61	39%	97	61%
Single Enlisted	77	74	96%	3	4%
Married Enlisted	348	263	76%	85	32%
Total Personnel	668	473		195	

Source: Edwards Air Force Base Housing Office

Farmworker Households The State of California requires that farm workers be considered when assessing housing needs. This is required because, as a group, farm workers have major housing problems resulting from a combination of low incomes, large household size, high rates of poverty, high rate of overcrowding, and the high mobility of many farm workers. A survey by the University of California, Division of Agricultural Sciences (June 1980), indicates that, in the State of California, more than 50 percent of local and seasonal workers earned less than $5,000 per year. The Department of Housing and Urban Development identifies households earning less than 80 percent of the State median income ($10,000) as having difficulty competing in the housing market. According to the most recent information, there were 53 farmworker households within the City, of which 29 were in the very low income category and 18 were in the low income category (SCAG, 1980).

Since agriculture has continued to decline during the past decade, it is likely that there will be even fewer farmworker households in the future. Therefore, this group is not expected to require significant amounts of additional housing in the future. It should be recognized that this group exists, and with the desire of many residents in the Antelope Valley to allow agriculture as long as possible, it will be important for the City to recognize the special problems that these households face in terms of housing.

Homeless Households The need for shelter of homeless persons and families became a pressing social issue during the 1980's. Homeless households group includes: persons with low or very low incomes, the unemployed, elderly who are unable to afford housing, families with children having low or no incomes, runaways, the chronically mentally ill, people who suffer from alcohol or drug abuse, and battered women. Identification of the different characteristics of the homeless is important, as often various social services are required in addition to permanent shelter for a successful escape from the streets.

Several sources of assistance for the homeless are available in Lancaster and the Antelope Valley, and are summarized in Table IV-B-23. Although this is not an exhaustive list, it represents the majority of services provided as of 1989. From the information provided by these agencies, it is estimated that approximately 75 individuals or families seek shelter in the Antelope Valley each month. This is based on 2,340 shelter-nights provided in December 1989, divided by 31 nights. This is a winter estimate: the number of homeless persons in Southern California increases during the summer months. This is only the number of people that are given shelter by homeless agencies; there are likely many more homeless who do not seek shelter through these agencies. All agencies contacted are operating at capacity, and indicate that they cannot now provide assistance to all who seek it.

The transient lifestyle of the homeless makes it extremely difficult to obtain an accurate count of their number. The State of California has estimated that between 50,000 and 75,000 homeless persons are in California. In Lancaster, based on estimates from the various state and local social service agencies, such as the South Antelope Valley Emergency Services (S.A.V.E.S.), the Salvation Army, the Department of Social Services, and the Antelope Valley Domestic Violence Council, between 125 and 189 homeless persons seek shelter each month.

Providing emergency shelter is only the first step in attempting to meet the needs of the City's homeless. There are a host of services, including counseling, health care, and training, that are linked with shelter in providing adequate assistance for the homeless. In recognition of this fact, three levels of shelter need for the homeless can be identified. These are: 1) emergency shelter; 2) transitional shelter; and 3) permanent low income housing. Emergency shelters are intended to meet immediate, short term housing needs by providing a warm, safe place to stay in time of crisis. Transitional housing provides longer term housing, usually in conjunction with counseling and other services which provide stability and allow the homeless individual to develop the necessary skills to achieve self-sufficiency. Permanent low-income housing allows the homeless to break the homelessness cycle and function independently in mainstream society.

Table IV-B-23
Area-Wide Homeless Services
City of Lancaster

Facility or Organization	Nights of Lodging Provided One Month (December, 1989)	Number of People Assisted (December, 1989)	Services Provided	Type of Persons Assisted
SAVES (South Antelope Valley Emergency Service) 38513 6th Street Palmdale, CA	376	815	food, motel vouchers, emergency gasoline and bus fares	The temporarily homeless due to eviction or domestic violence Those not qualified for general relief or AFDC
Lancaster Community Shelter 44611 Yucca Ave. Lancaster, CA	1,120	NA	10 - 3-week emergency beds 6-month Transition 30 - living, Program beds additional beds under 10 - the County Cold Weather Program (nights under 40 degrees)	Homeless individuals and families
Valley Oasis Shelter Confidential Location	735	65	30 - 45 days of shelter, food and clothing, adult, child, and group counseling, legal advocacy, transportation, and a 24-hour referral hotline.	Victims of domestic violence, except where victim is a substance abuser
Department of Social Services	NA	NA	General Relief - payments AFDC - payments 1-3 nights motel vouchers, food, clothing, gasoline, and prescriptions for life-threatening illness.	Assistance to single adults Aid to families with dependent children
Salvation Army	109	616 (Adults) 281 (Families)	food, clothing, and lodging	Persons who have exhausted other community resources
Total Nights of Lodging	2,340			

Recent amendments to Housing Element law (Article 10.6 of the California Government Code) require local jurisdictions to designate a site(s) suitable for emergency temporary shelter(s) and transitional housing for the homeless. Transitional housing means providing housing for an extended period of time, usually 90 days, and generally includes integration with other support services, such as counseling and social services to assist homeless persons to become self-sufficient and prepare them for re-entry into society's mainstream.

The City, under the Lancaster Community Shelter Project, has completed construction of a 40 bed capacity emergency shelter which will provide temporary shelter for the homeless. The shelter is owned by the City, and is operated by Catholic Charities, a private, non-profit organization selected by the City. This non-profit organization has been given the responsibility to feed and clothe the residents of the shelter.

k. Local and Regional Assistance

The SCAG 1988 Regional Housing Needs Assessment (RHNA) forecasts regional housing needs by income category. Based on their estimates, 33.7 percent of Lancaster households in 1988 (8,691 out of 28,036) were classified as Lower Income Households (LIHH), having incomes below $22,800 for a family of four (see Table IV-B-24). There were 1,292 (13.7 percent of all LIHH), Low Income Households, defined as those households with incomes at 80 percent of the County median income ($24,171) or less. Of those, 13.6 percent (3,807 households) were overpaying for housing, that is paying more than 30 percent of their gross income in housing payments (rent, utilities, principal, interest, taxes, and insurance payments). There were 2,517 (26.6 percent of all LIHH) in the Very Low Income group, making $14,250 or less. The largest group that overpays for housing identified by SCAG is Very Low Income renter households. It should be noted that 19 percent of all lower income households are in this group.

Affordable housing opportunities for lower income groups are available in Lancaster through federally subsidized Department of Housing and Urban Development (HUD) programs. These programs usually involve low interest loans to developers and low income homeowners for rehabilitation, and Section 8 rental assistance payments. In the City of Lancaster there are currently 804 rental units that are subsidized by HUD, according to a 1989 inventory prepared by the California Coalition for Rural Housing Project (CCRHP) under contract to the California Housing Partnership. Some U.S. Farmers Home Administration (FMHA) projects are contained in this number, but only if they have a HUD subsidy. All of the projects now house some proportion of low income families, seniors, or disabled persons and charge low rents on these units.

Affordable Units at Risk Over the last 25 to 30 years, various housing subsidy programs designed to make rental housing more affordable have included requirements that establishes rent levels affordable to the low and very low income population. Various projects have been built under these programs, including Farmers Home Administration (FMHA) Section 515, Federal Housing Administration (FHA) Sections 236 and 221 (d) (3) below market interest rate loans, Housing and Urban Development (HUD), and Section 8, new construction and substantial rehabilitation programs. Each program had a limit on the length of time the rent limitations were to be imposed, depending upon the nature of the subsidy. Federal and State mortgage revenue bond regulations also imposed a requirement that a certain percentage of the units be rented at affordable levels, and these requirements also had limitations on the number of years they would be in effect.

A thorough inventory of at risk housing and a strategy for its preservation is included as Section J of the Housing Element.

Table IV-B-24
SCAG 1988 Regional Needs Assessment Income Categories

	LOW INCOME HOUSEHOLDS[1]			VERY LOW INCOME HOUSEHOLDS[1]		
	Income Range	Number	% of Total Households	Income Range	Number	% of Total all Lower Income Households
City of Lancaster	Below $22,800	9,448	33.7%	Below $14,250	2,517	26.6%
County of Los Angeles	Below $22,800	1,201,442	40.5%	Below $14,250	412,914	66.8%

1 For a family of four.

2. ANALYSIS

a. Housing Projections

The SCAG Regional Housing Needs Assessment (1988) projected a need for an additional 11,735 housing units of all types within the City of Lancaster between 1989 and 1994. Approximately 5,345 units (45.6 percent) are needed for high income households, 2,244 (19.1 percent) for moderate income households, while a total of 4,145 units (35.3 percent) are needed for lower income households. The majority of housing that will be needed is for high income, and this will continue to be a focus for the City. However, the City will promote a broad range of housing types and prices in new housing development in all residential areas, compatible with the character and integrity of the area. However, more emphasis has been placed on developing action programs to meet the needs of the low to moderate income households, as the market does not provide for these populations.

By 1994, the City expects to support a total of 42,310 units. Based on the 36,525 units that existed in 1990 (DOF 1990), the City is projected to add 5,785 units over the next four years, or 1,446 units each year. It should be noted that this is below the SCAG Regional Housing Needs Assessment figure of 2,347 units per year. In addition, the City's projection of 1,446 units per year is also below the historical average of 1,600 units each year that occurred during the late 1980s. This rate is unlikely to continue in the near-term future due to softness in the housing market. (Recent market information indicates that annual housing projection figures will most likely fall below what is indicated here. See Section I, "Quantified Objectives" of the Housing Element for additional information.)

SCAG 20-year housing projections are identified in Table IV-B-25. As shown, significant increases are expected, both within the City of Lancaster as well and the unincorporated portions of the General Plan study area.

Table IV-B-25
Year 2010 Housing Projections

	1990			2010		
	Total Housing	Single Family	Multiple Family	Total Housing	Single Family	Multiple Family
City of Lancaster						
Number	36,525	26,769	9,756	104,614	63,875	40,739
Percent		73.3%	26.7%		61.1%	38.9%
Unincorporated[1]						
Number	8,761	7,052	1,709	25,029	16,507	8,522
Percent		80.5%	19.5%		66.0%	34.0%
STUDY AREA TOTAL						
Number	45,286	33,821	11,465	129,643	80,382	49,261
Percent		74.4%	25.6%		62.0%	38.0%

Source: California Department of Finance, SCAG

1 Projection does not include proposed California Springs development, which could add 21,402 housing units.

b. The Need for Replacement Housing

A substandard unit is defined as a unit which does not meet the City's building code and HUD's Section 8 housing standards. Since a large percentage of the City's housing units were constructed after 1980, the majority of the City's housing stock is in very good condition. The Lancaster Housing Assistance Plan estimates that there are only 2,550 substandard dwelling units within the City, representing only 8.4 percent of the total housing stock of 30,306 units in 1988.

Located east of the downtown area and Sierra Highway are approximately 250 single and multi-family dwellings on land which is planned for industrial development. These units generally house low and moderate income households. However, the proximity of the rail line and Air Force Plant 42, as well as the existence of scattered industrial uses and long time industrial zoning commitments, points to the desirability of these areas for non-residential use. In addition, approximately 20 single-family dwellings along 10th Street West south of the downtown area have also been designated for non-residential (commercial) use. High traffic volumes along 10th Street West, along with adjacent commercial development, make these parcels undesirable for long-term housing.

Because significant infrastructure improvements are required, the timing for conversion to industrial use is unknown. Therefore, estimates of the need for replacement housing do not include conversion of residential parcels to non-residential use.

c. Future Housing Needs by Income Group

The Southern California Association of Governments (SCAG) prepared a Regional Housing Needs Assessment (RHNA) in June of 1988 for cities in its six-county region. The model provides a five-year projection of housing needs and a breakdown of those needs by income category. The Housing Elements of local agencies are required to make a good-faith effort to meet the needs identified in the RHNA model.

Existing Need This term identifies the number of lower income households (income less than 80 percent of County median income) overpaying for housing (more than 30 percent of gross income in housing payments). The SCAG 1988 estimate of 7 percent of Lancaster households falling into the Lower Income category sets the foundation for their projected future needs (see Table IV-B-26).

Future Need The State Housing Element Law requires that all cities must consider regional housing needs when preparing a housing element every five years. The Regional Housing Needs Assessment (1988) estimated Lancaster's share of the regional housing needs. To determine the distribution of regional housing needs, SCAG takes into consideration six criteria: market demand for housing, employment opportunities, availability of suitable sites and public facilities, commuting patterns, type and tenure of housing need, and housing needs of farmworkers. The needs assessment allocates the City's share of regional future needs by adding its five year household growth to the year 1994 to the number of units that would have to be added in the City in order to meet the vacancy goal and compensate for anticipated demolition of dwellings. Table IV-B-26 shows the calculations that were used to derive the City's share of regional housing needs. SCAG projects a need for an annual average of 2,347 additional housing units between 1989 and 1994. A large number of these units, 65 percent, are needed for upper income households, while 35 percent are needed for lower income households. The projected housing need has taken into account the additional need accrued from the one and one-half year "gap" period from January, 1988 to June 30, 1989. The "gap" is an 18 month interval existing between the last regional needs assessment and the current one.

The projected 42,310 units are the City's share of the regional housing needs as allocated by SCAG for the next five years. The 57 percent share of the housing stock for single family units and the 32 percent share for multi-family units is from the City's housing survey for 1989. Assuming that this ratio of the two housing types remains constant, the City would need to provide an annual average of 1,596 single family units and 751 multi-family units to meet regional housing needs. (See Section I, "Quantified Objectives" of the Housing Element for more recent information regarding the City's ability to meet regional housing needs projections.)

California Housing Law requires jurisdictions to continue to house the current total number in each income group plus those households allocated to it as "future needs". The income levels, for which Future Need additional units are provided in each jurisdiction, is based on that jurisdiction's current household income distribution and then adjusted for "avoidance of impaction".

The "avoidance of impaction" adjustment is done in response to the intent of the State Housing Law to avoid further concentration of lower income households in jurisdictions that already have more than the regional average proportion of lower income households. How this is accomplished is a matter of policy choice for SCAG, which selected the following procedure.

First, SCAG assumed that the household income breakdown by category (i.e., lower, low, moderate, and upper income) for a projected five-year growth would be the same as the existing breakdown. Second, SCAG applied an "impact avoidance factor". The factor was based on a policy decision which stated that the percentage of lower income households in the Future Need would be "25 percent of the way" from their current percentage in a jurisdiction to the regional average of 40.2 percent. In other words, a jurisdiction with 30 percent lower income households would have a Future Need that was 32-1/2 percent lower income, or "25 percent of the way" from 30 percent to 40.2 percent, while one with 50 percent would have a Future Need that was 47-1/2 percent lower income, or "25 percent of the way" from 50 to 40.2 percent.

After doing this adjustment, a second adjustment would be done for those jurisdictions that were "highly impacted" and would remain so even after 20 years of reduced impaction ("25 percent of the way") future development. This second adjustment was made by reducing the percentage of lower income Future Need units in a community. These reductions would be designed to result in the highly impacted jurisdiction no longer being highly impacted in 20 years, unless such a further adjustment would mean that as Future Need lower income proportion would be less than two-thirds of its current proportion.

"Highly Impacted" is defined as exceeding the regional average proportion of lower income households by more than 10 percent. Therefore, this second adjustment would result in such jurisdictions attaining an overall (existing and additional) proportion within 10 percent of 40.2 percent lower income, or about 44 percent lower income, within 20 years. Only if such an adjustment required a reduction in Future Need proportions to less than two-thirds of its current lower income proportions would the goal be unattainable. An example of this would be a jurisdiction with 57 percent current lower income households that required a Future Need lower income proportion of less than 38 percent to attain an overall proportion of 44 percent in 20 years. In such a case, the "circuit breaker" would come into play and its Future Need proportion would be reduced to 38 percent and no further (see Tables IV-B-26 and IV-B-27).

Table IV-B-26
Regional Housing Allocation Model Worksheet
City of Lancaster

CURRENT NEEDS								
1	Total Housing Units	30,306						
2	Total Households	28,036						
3	Households in Need		Total		Renters		Owners	
	(Lower Income Households Paying over 30% of Income for Housing)		2,517 Very Low	1,292 Low	760 Very Low	429 Low	1,757 Very Low	863 Low
FUTURE NEEDS								
4	1994 Households	42,310						
5	1989 Households	31,330						
6	5-Year Growth in Households	10,980						
7	January 1988 to June 1989 "Gap Period" Need	3,415						
8	Vacancy Adjustment (see Table IV-B-29)	699						
9	Demolition Adjustment	57						
10	Projected 1989 to 1994 Housing Need for All Income Groups, Includes 25% Impaction Avoidance Adjustment	11,734	1,766 Very Low (0% to 50%)	2,379 Low (50% to 80%)	2,244 Moderate (80% to 120%)	5,345 Upper (Over 120%)		
			Lower Income Need (4,145) is 35% of Total Need		Upper Income Need (7,589) is 65% of Total Need			

Source: SCAG Regional Housing Needs Assessment for Southern California, June 1988.

Table IV-B-27
Vacancy Adjustment

	Line	Total
1	1988 Ideal Vacancy Need (0.03% x 30,306)	958
2	1987 Actual Vacancy Need (0.020% x 30,306)	606
3	Vacancy Deficit or Surplus or Exist. Vac. Need (Line 1 - Line 2)	352
4	Additional Vacancy Need for 1989-1994	347
5	Total Vacancy Adj. or Market Vacancy Goal for 1994 (Line 3 + Line 4)	699

Source: Regional Housing Needs Assessment, June 1988.

Further measures could be taken by the City to strengthen the lower-income household segment of the population and improve declining residential areas. Non-profit agencies, such as Habitat for Humanity, make home ownership possible for selected lower income families. They coordinate private donations of land, capital, materials, and labor to build affordable housing. The introduction of these owner-occupied units in declining areas often provides incentive for the improvement of adjacent properties.

d. Summary of Housing Needs

The housing needs in the City of Lancaster are not only a function of a certain number of dwelling units that are presently needed and will be necessary in the future, but included in these numbers are the types of housing that are needed. To accurately predict what types of housing will be necessary in the future, demographic and economic characteristics must be analyzed. Special needs groups, the handicapped, the elderly, large households, farmworker households, families with female heads of household, the homeless, and low income persons must be discussed, and housing that focuses on their unique needs is necessary. Some of these groups need social services along with shelter, such as the elderly and the homeless, while others may need financial assistance through low income units.

An average of 2,347 new housing units will be needed annually over the next five years (11,735 total) to provide for projected household formation, replace substandard units, and obtain a healthy vacancy rate for an efficient housing market. New housing needs include 4,145 units for low and very low income households by 1994. These should be available in an adequate mix of rental and conventional sales, as well as a mix of mobile homes and attached and detached single family units. (See Section I, "Quantified Objectives" of the Housing Element for more recent information on the City's ability to meet regional housing needs projections.)

e. Housing Constraints

In planning for the development, maintenance and improvement of housing, constraints to housing development must be identified. Many of these constraints cannot be mitigated by local government, particularly those related to the condition of the national economy, but others can be minimized in order to facilitate the provision of housing. Constraints to housing include government constraints and market constraints.

f. Government Constraints

The State Housing Element Guidelines require that the Housing Element address those public actions which might constrain the maintenance, improvement or development of housing. The major constraints imposed by government are decreasing federal and state commitments to housing, conflicting local responsibilities, development standards, fees, and processing time.

Decreasing Federal and State Commitment to Housing Programs The emphasis placed by the federal and state governments on housing policies and funding has traditionally shifted with changing administrations and priorities. However, there has been a clear trend to de-emphasize federal and state housing programs over the past decade. During this time, Federal funding for housing programs has been sharply reduced. A concurrent reduction in state funding for housing occurred over the same time. This leaves local governments in California with a mandate to provide programs to facilitate housing for all economic segments of the community without access to the funds to maintain such programs. Given the budgetary problems being experienced by both the federal and state governments, it is unlikely that increased funding for housing programs will be forthcoming in the near to mid-term future. It is possible, however, that remaining housing programs will face further reductions in funding.

Conflicting Responsibilities of Local Government The mandate that local governments provide for housing for all economic segments of the community is but one of many, often conflicting, responsibilities they face. In addition to dealing with issues of affordable housing and housing rehabilitation, cities must provide municipal services and facilities, protect the natural environment, ensure a high quality of development and urban design, reflect the concerns of City residents, and facilitate increases in local employment- and sales tax-generating uses. These responsibilities must be met in an era of increasingly tight budgets. As a result of state laws relating to municipal finance, reductions in federal and state funds for infrastructure and other programs, and changing public attitudes toward growth, local agencies have had to require that development internalize many costs which were once subsidized by various public funds. As a result, the cost of development inevitably increases, and the American dream of owning a home becomes more difficult for those who are not fortunate to already own a home.

Along within the mandate for local governments to provide housing for all economic segments of the community is the democratic principle that government respect the desires of the governed. Over the past several years, there has been an increasing concern on the part of single family residents in Lancaster and throughout Southern California regarding a proliferation of apartments and multi-family development. In many communities, "low and moderate income housing" is perceived as a problem to be avoided, rather than

as a public responsibility, and individuals are electing local government on a platform of "no more apartments". The result is that community acceptance of multi-family development or low and moderate income housing is severely limited or non-existent.

Development Standards and Land Use Controls Development standards include zoning ordinances, subdivision ordinances, and building code requirements. The most far-reaching constraints are those contained in a city's zoning ordinance, which is the most traditional tool used by a local jurisdiction to regulate the use of private land. Zoning regulates the use; density; floor area; setbacks; parking; and placement and mix of residential, commercial, and industrial projects to reflect the community's development goals and objectives.

Zoning can reduce the supply of land available for residential development by placing land in open space or buffer zones, or by rezoning residential land for other uses. Zoning also regulates the intensity of residential land use through minimum lot size requirements. The minimum lot size for urban single family residential development in Lancaster is 7,000 square feet, although some older areas with 6,000 square feet minimum lot sizes exist. It is important that the minimum lot size not be too large because this would (a) reduce the potential supply of housing by limiting the number of units that can be built on a parcel of land, and would (b) increase the land cost per unit. High land costs may lead to increased construction cost for the developers. On the other hand, the City of Lancaster needs to be careful not to set minimum lot sizes too small, creating conflicts with rural development and recreating the intense urban area most Lancaster residents left behind to move here.

A summary of the development standards for each zoning classification that allows residential units is given in Table IV-B-28. The information shows that the City's Zoning Ordinance encourages a range of density and dwelling unit types, but is also restrictive of unit types within certain zones. In other instances, the restrictions protect certain types of units from being easily removed, such as mobile homes under the Mobile Home Park zone.

Two other potential constraints exist in the Zoning Ordinance. The Ordinance currently provides no deviation (without a variance) from parking standards, except in the commercial zones, for elderly units, which could constrain the production of senior citizen housing. Planned amendments to the Ordinance should rectify this problem, however. The other constraint is the requirement of a conditional use permit for apartment houses or multiple family residential projects of more than 10 dwelling units. This process lengthens processing time, and can result in loss of units if nearby residents complain that the project is too dense. The constraint on multi-family housing production is compounded by policies which permit single family development in multi-family zones. The result is a reduction in the amount of land available for multi-family development, and the creation of potential conflicts with, and opposition to, future multi-family development, once single family neighborhoods are established.

Subdivision regulations which govern the division of a parcel of land into two or more smaller parcels can increase housing construction costs. The requirement that site improvements and amenities such as landscaping, underground utilities, and landscape maintenance districts be required in a subdivision can also escalate housing prices.

When analyzing development constraints, it is important to distinguish between those constraints that are excessive and unreasonable, and those designed for a particular purpose. The City, while encouraging housing, is also concerned about the living environment that is created. Standards for density, height, setbacks, undergrounding of utilities, and aesthetics are designed to create residential projects and areas that are functional and aesthetic. The conditional use permit process, although it lengthens approval time, is thought to be a reasonable compromise in allowing City residents input on projects which may affect their area and as a method of affording better project design.

Building codes regulate new construction and substantial rehabilitation. They are designed to ensure that adequate standards are met to protect against fire, collapse, unsanitary conditions, and safety hazards. The City follows the same building code standards as does Los Angeles County. These standards are set by the Uniform Building Code. Building costs do not appear to be unduly increased through local building codes. However, state regulations with respect to energy conservation, though perhaps cost effective in the long run, may add to initial construction costs.

g. Fees

The fee schedules for the City and other local agencies as of September 1991 are contained in Tables IV-B-29 and IV-B-30. There are two basic types of fees, those for the processing of development applications (subdivisions, conditional use permits, etc.), and those to pay for the costs associated with new development (dwelling unit, traffic signals, sewer connections, etc.). The City also requires dedication and/or improvements of streets, drainage channels, etc., when new development occurs. Fees for plan check and building permits are determined based upon the valuation of the structure.

The role that fees play in constraining the production of housing is difficult to measure, although they can affect housing prices in certain markets. The theory behind fees is that new development should bear its own costs, and that these costs should be spread as equitably as possible. State law requires that fees must bear a reasonable relationship to the actual costs incurred by the City, so that they do not become excessive. Even so, fees may add significantly to the cost of a housing unit, especially in those areas of the City that are largely undeveloped and require new infrastructure and services to be developed.

(1) Processing Time

Before development can occur, it is necessary that certain permits, inspections, and approvals be obtained. These procedures, although necessary to insure the development is safe and in compliance with local regulations and building code requirements, can sometimes lead to delays in projects and subsequently increase costs. Moreover, excessive processing time may act as a constraint on the production of affordable housing, because it increases carrying costs to the developer for land, financing, etc. As a result, the City has attempted to reduce processing time to the minimum necessary for adequate review and control of development in accordance with the previously discussed development standards.

Table IV-B-28
Residential Development Standards, 1988

Zone Classification	Residential Uses: Permitted	Conditional	Minimum Lot Area	Density	Minimum Unit Size	Parking Requirements
RR-2.5/RR-1 (Rural Residential)	Detached single family residences, Mobile home on foundation	RPD (Residential Planned Development)	RR-2.5 = 100,000 s.f. RR-1 = 40,000 s.f.	1 - unit/lot	750 s.f.	2 garage parking spaces
SRR (Semi-Rural Residential)	Detached single family residences, Mobile home on foundation	RPD	20,000 s.f.	1 - unit/lot	750 s.f.	2 garage parking spaces
R-15,000-10,000/R-7,000/R-6,000 (General Residential)	Attached and detached single family residences, Mobile home on foundation		R-15000 = 15,000 s.f. R-10,000 = 10,000s.f. R-7000 = 7,000 s.f. R-6000 = 6,000 s.f.	1 - unit/lot	750 s.f.	2 garage parking spaces
MHP (Mobile Home Park)	Mobile home park		10 acres for park. Individual spaces: 4,000s.f. w/amenities 5,000 s.f. w/o-amenities	1 - unit space	none	2 covered spaces per unit + 1/4 guest space per mobile home space, + 1 10x25' space/5 mobile home spaces for RV storage. 1 space/10 mobile home spaces for recreational amenities, if provided.

Table IV-B-28 (Continued)
Residential Development Standards, 1988

Zone Classification	Residential Uses: Permitted	Residential Uses: Conditional	Minimum Lot Area	Density	Minimum Unit Size	Parking Requirements
MDR-1/MDR-2 (Moderate Density Residential)	Existing single family detached residences on an individual lot Duplex or two (2) family residences on an individual lot Apartment house, on multiple family residential project of less than ten dwelling units	Single-family attached or detached residences. Subdivision with each unit on an individual lot. Multiple family development of more than ten (10) dwelling units. RPD.	5,000 s.f.	MDR-1: 7.1-11 units/acre MDR-2: 7.1-15 units/acre	750 s.f. (single family) 400 s.f. (multiple family)	1 or 2 units per lot: 2 garage spaces per unit. 3+ units per lot: 1 BR-1 1/2 covered spaces/unit; 2 BR-1 1/2 covered + 1/2 uncovered space/unit. All developments of 4+ units must provide 1/4 guest space/unit.
HDR-1/HDR-2 (High Density Residential)	Same as MDR	Same as MDR	5,000 s.f.	HDR-1: 15.1-25 units/acre HDR-2: 15.1-30 units/acre	Same as MDR	Same as MDR
C, CPD, CBD, H (Various Commercial Zones)		Single family residences, Multiple family unit	5,000 s.f.	Same as HDR	Same as HDR	Same as HDR

Tables IV-B-29 and IV-B-30 outline the typical processing times and fees for various development approvals by the City and other local agencies. City processing times for those projects requiring special environmental studies take longer under the requirements of the California Environmental Quality Act. The City requires that all site plan reviews, tentative maps, conditional use permits, variances, and rezonings be reviewed by the Development Review Committee (DRC). The DRC draws together concerns and comments from Community Development, Building and Engineering, Los Angeles County Fire Department, Sheriff's Department, water and sanitation districts, schools, and other affected agencies. The DRC reviews the proposal and, if changes are necessary, informs the developer/applicant of what those changes are. The aim of the DRC is to allow unified, single point review of proposals, thereby reduce processing time. It should be noted that the ability of the developer's team (architect, engineer, etc.) to coordinate with each other, as well as with the City, is an important factor in determining ultimate processing time. In general, processes which require Planning Commission or City Council approval take longer because of meeting schedules and state notification requirements. As a result, the City should carefully weigh the benefits resulting from such procedures against the additional processing time involved to ensure that they do not become an unreasonable constraint.

Table IV-B-29
City Processing Fees For Residential Developments
September 1991

Procedure/Document	Typical Processing Time	Fees
APPLICATION PROCESSING FEES:		
Tentative Maps:		
Parcel Map	4-6 months Residential	$1,500
(includes vesting map)	Commercial/Industrial	$2,260
Tract Map	4-6 months 1-40 lots	2,000 + 25/lot
(includes vesting map)	40+ lots	3,000 + 15/lot over 40
Final Maps:		
Parcel Map	3-8 months	$275 + $15 per lot
Tract Map	6-12 months	$600 + $15 per lot
General Plan Amendment	1 year	$3,770
Conditional Use Permit:	4-6 months Parent	$3,880
For Hazardous Waste Facilities add initial deposit of		$25,000
Environmental Assessment	varies depending on subsequent need for neg. dec. or EIR	$1,440 (290 if Neg. Dec.)
Site Plan Review:	2 months	$1,890
Directors Review	1 month	$120
Zone Change:	6-8 months	$3,420
Lot Line Adjustment	1 month	$190
Variance: (when a CUP and Variance are submitted concurrently, the Variance only requires a half-fee)	4-6 months	$2,840
Plan Check:	1 month	dependent upon building evaluation
INSTALLATION OR UPGRADE OF TRAFFIC SIGNALS FEES:		
Residential Zones/Residential Specific Plans and Multiple Residential Zones		$522.39/Dwelling unit + $16.66 per A.D.T.E.[1]
Commercial Zones		$0.08/Bldg. gross s.f. + $16.66 per A.D.T.E.
Industrial/Manufacturing/Industrial Specific Plans		$0.06/Bldg. gross s.f. + $16.66 per A.D.T.E.
PLANNED LOCAL DRAINAGE FACILITIES FEES:		
Residential Zones		$865.36/Dwelling Unit
Multiple Residential Zones		$461.31/Dwelling Unit
Commercially Zoned Property		$0.22/s.f./Imperv. Area[2]
Industrially Zoned Property		$0.22/s.f./Imperv. Area[2]
Other Zoned Property		$0.22/s.f./Imperv. Area[2]

All utilities for on-site and distribution service(s) to all proposed subdivision, building sites and structures shall be underground. When necessary to remove or relocate existing electric, communication, or similar or associated utility service(s), the owner or developer shall bear the cost of undergrounding such utility service(s).

Table IV-B-29 (Continued)

User Category	Processing Time	Fee per Unit
DWELLING UNIT FEE:		
Dwelling Unit	NA	$1,000 per unit
Mobile Home Spaces	NA	$750 per unit

Note: Fees listed in this table are current as of September, 1991

1 A.D.T.E. = Number of average weekday vehicle trips generated as determined from the Institute of Traffic Engineer's (ITE) Trip Generation Information Report.

2 Cost per square foot of impervious area.

Table IV-B-30
Other Agency Processing Fees For Residential Developments

User Category	Processing Time	Connection Fee per Unit of Usage
Single family home	N/A (part of building permit)	$1,350 per unit of usage. Fees for other than single family units, please contact Los Angeles County Sanitation Dist. #14.

LOS ANGELES COUNTY RESIDENTIAL SEWER CONNECTION FEE:

User Category	Processing Time	Connection Fee per Unit of Usage
Single family home	N/A	$1,350

User Category	Processing Time	Connection Fee per Unit of Usage
Apartments Mobile Homes Condominium		(fees for other than single family units, please contact L.A. County Sanitation District No.-14)

INTERIM SCHOOL FACILITIES FINANCING FEE:

Residential	N/A	$3.24 per square foot
Commercial and Industrial		$0.26 per square foot

(2) Public Housing

Article 34 of the California Constitution was adopted as an initiative by the voters in 1951, primarily in response to the increasing number of federally-funded, tax-exempt public housing projects. These projects were perceived to have negative social, economic, and aesthetic effects on local communities. Article 34 states that before a "state public body" can "develop, construct, or acquire in any manner" a "low-rent housing project", the local voters must approve the endeavor. All three "factors" must be present for the referendum to be required.

The Article 34 referendum requirement has often proved to be a psychological or actual barrier to the development of many forms of assisted low rent housing, particularly those intended for low income families. Because of the Article's vague language, communities have been reluctant to risk litigation by entering into the development of public housing for low and moderate income families. While there have been many successful referendums, failures have not been uncommon. As such, there is a tendency for local governments to avoid possible controversy with this type of ballot measure.

h. Non-Government Constraints

Various factors not under the control of government also affect the cost, supply, and distribution of housing. These factors include land, construction, financing, and miscellaneous costs, as well as speculation.

Land Costs Costs associated with the acquisition and improvement of land include the market price of raw land, the costs of holding land throughout the development process, and the necessary improvements to the land prior to construction. Land holding costs are determined by interest rates on acquisition and development loans during development. Interest rates are not under the control of local jurisdictions; therefore, the greatest inroad that can be made on holding costs would be through shorter processing times for development permits.

A major component of housing is the price of raw land. The City cannot control the market price of land, which is pushed upward by speculation, high demand, and dwindling supply. The price of land can also escalate through land fragmentation, which is a problem in some areas of Lancaster, and can result in a significant constraint on housing production. Land fragmentation, which was originally allowed by inadequate regulation of land divisions in the past, often resulted in parcels that are uneconomical or difficult to develop because of size, inadequate access, or scattered ownership. In Lancaster, the problem is most acute on the east side of the City, where fragmented areas adjacent to existing development hamper logical urban expansion. Often, these areas are "skipped over" in favor of land further away from the urban core, leading to "leap-frog" development. The result is that developers incur greater costs for infrastructure extensions, and these costs are passed on to the potential buyers in the form of higher housing costs. At the present time, it appears that the lower land costs on the urban fringe may offset some or all of the increased infrastructure costs; however, it is obvious that, in some instances, land fragmentation does constrain housing production in areas close to necessary urban services.

Construction Costs Construction and land costs together may represent between 65 percent to 75 percent of the sales price of housing. Table IV-B-31 displays information on total construction costs for single family units and apartments in 1984 and 1988 in the Antelope Valley. These costs include materials and labor only. As shown, the average construction costs in 1988 was $42 per square foot for single family units, and $36 per square foot for apartment units, while condominiums average $39 per square foot. As expected, apartments cost less per square foot to construct than single family residences, and are generally more affordable for low or moderate income households. However, the costs may still be high enough to preclude these households from purchasing or renting new housing without assistance.

Land costs constitute a relatively small part of the overall construction costs in Lancaster (see Table IV-B-32). Although costs for higher density land are more expensive, the costs can be spread out over more units, which normally results in a lower land cost per unit. This fact again demonstrates that multi-family or attached housing generally provides a better opportunity for constructing affordable units.

Financing Costs The cost of permanent mortgage financing for new and existing homes, as well as cost of new residential construction financing, play a significant role in the affordability of housing. General inflation in the economy directly and indirectly causes housing prices to increase, which in turn raises finance costs. As the absolute price of a home increases, it adds to the mortgage amount, which result in increases in the principal, interest, insurance, and taxes a home buyer must pay. The direct correlation between interest rates and monthly mortgage payments (principal and interest) is illustrated on Table IV-B-33. The table compares principal and interest payments on a 30 year, $96,000 mortgage at various fixed rates, and the yearly income necessary to qualify for a loan. As an example, the monthly mortgage payment on a $120,000 home is $773 with a 9 percent interest rate, compared with $914 with an 11 percent interest rate (see Table IV-B-33). This is a difference of $141 a month. The data shows that financing has a strong impact on affordability of housing. Private market and government strategies which can 1) lower the cost of financing; 2) minimize the burden of high cost mortgage financing; and 3) shelter housing from continual refinancing at higher rates will have the effect of making housing more affordable to many people.

The $120,000 house with a $96,000 mortgage used in Table IV-B-33 illustrates the affordability of the lower end of the Lancaster housing market. Assuming ten percent interest rates, approximately 51.4 percent of existing Lancaster households can afford this mortgage. Countywide, only 43.5 percent of the households can afford a $96,000 mortgage. Thus, although housing in Lancaster is much more affordable than other portions of the County, it is still too expensive for most County residents.

Table IV-B-31
Average Total Construction Costs for Various Unit Types,
Antelope Valley, 1988

	Type of Unit	Total Cost/Square Foot
1984	Single Family Detached (1 story)	$39.30
	Multi-Family - Apts/Condo	$33.40
1988	Single Family Detached (1 story)	$42
	Multi-Family - Apts/Condos - Apartments	$36
	Condominium	$39

Source: Interview with BIA, December 1988

1 Applies to woodframe construction only. Costs include materials and labor.

Table IV-B-32
Costs of Land in City of Lancaster, 1988

Zoning of Land	Costs/Square Foot
R (General Residential)	$1.38
MDR (Moderate Density Residential)	$1.38 - $1.84
HDR (High Density Residential)	> $1.84
Commercial	$9.00 - $17.00
Industrial	$1.00 - $6.50

Source: Mid-Valley Realty

Table IV-B-33
Comparison of Monthly Principal and Interest Payment
at Various Interest Rates, July 1989

Interest Rate	Approximate Monthly Principal and Interest Payment[1]	Approximate Income Needed[2]
9%	$773	$37,085
10%	$843	$40,462
11%	$914	$43,893
12%	$987	$47,380
13%	$1,062	$50,978
14%	$1,137	$54,576
15%	$1,214	$58,285

Source: Derrigo Demographic Studies and City of Lancaster estimates.

1 Based on 30-year, $96,000 mortgage (purchase of median cost $120,000 home, 20 percent down). Payments include only principal and interest.

2 Assumes monthly payment can be no more than 25 percent of monthly gross income.

Speculation Speculation in real estate occurs when real estate investors buy housing or land at "low prices" and then resell it at a much higher value within a short period of time. The problem is particularly acute if property rapidly changes hands from speculator to speculator. The price the eventual long term owner or consumer will pay could be highly inflated. Speculation affects not only the individual property, but the market climate in the area as a whole.

Because there are few statistics available on the rate of property turnover and the profit received from transactions, the amount of speculative activity and its impact on the City's rising housing costs is not clearly known at this time.

Housing Discrimination As a characteristic of the housing market, discrimination may often present a barrier to providing an adequate choice of housing for all groups. Discrimination, which may be defined as prejudicial treatment applied categorically and not on the merit of the individual, takes many forms. Most forms of housing discrimination are a violation of state and federal laws, which prohibit discrimination against homeseekers for reasons of race, religion, national origin, ancestry, color, sex, or marital status. Some of the types of discrimination encountered are refusal to rent or sell, inflated rents, higher prices, excessive deposits, unreasonable occupancy standards, limited choice among available units, and poor maintenance and repair. The target populations subject to discrimination are not limited to racial and ethnic minorities, but also include recipients of welfare and public assistance, families with young children, young unmarried persons, and the handicapped.

Redlining is also a form of discrimination, wherein home improvement and mortgage loans are not made available by a lending institution in lower-income or minority neighborhoods. Redlining involves the use of varying criteria for home financing, based upon geographical differences. Often referred to as "neighborhood disinvestment", redlining practices include outright refusal by a lending institution to approve home purchase and rehabilitation loans, making loan conditions stricter (e.g., higher down payment, higher interest rates, higher closing cost), or appraising property below market value or with more rigid standards than used on comparable property in other neighborhoods. Older, declining neighborhoods with high minority concentrations were often targets of redlining practices in the past. Redlining results in deterioration of neighborhoods, real estate speculation and housing abandonment. Most frequently affected are minorities and low income persons in general.

Despite the fact that redlining is now illegal, this practice is still reported across the country. The Community Reinvestment Act (CRA) was passed by Congress in 1977 to help eliminate redlining. The CRA establishes a Congressional mandate that private, federally-chartered lending institutions must serve the convenience and credit needs of their surrounding communities. While the enforcement and sanction provisions of the CRA are relatively weak, it does provide for public disclosure of a lender's performance in meeting community credit needs through requirements for an annual CRA statement.

Although there is no evidence of redlining in Lancaster, it is important that local jurisdictions, at a minimum, annually review local lenders CRA statements to insure that such practices do not occur. Where redlining practices are discovered, a sanction available and suggested for use by SCAG in the Regional Housing Element is the deposit of municipal funds in local lending institutions contingent upon acceptable loan performance in older, declining neighborhoods. In the City of Lancaster, these neighborhoods would include the Community Development Block Grant (CDBG) Target Areas.

i. Housing Opportunities

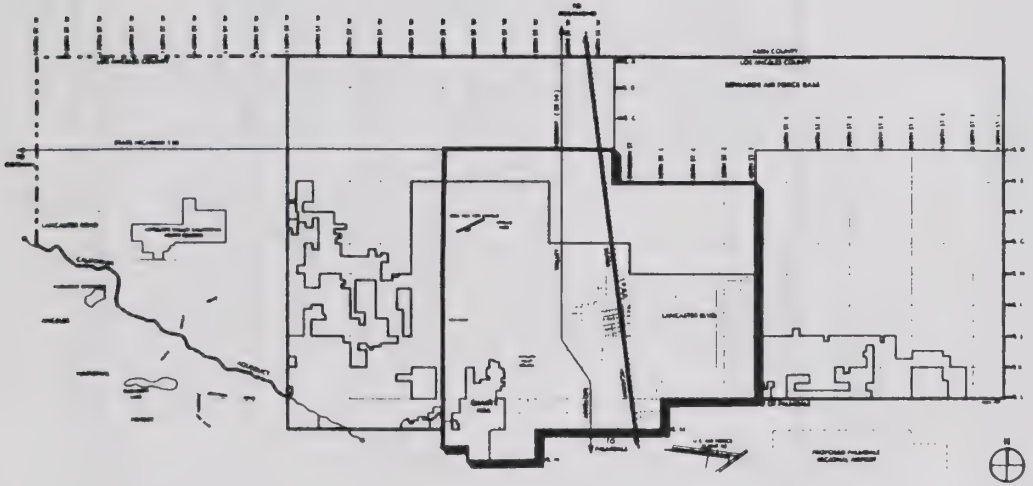
State law requires the Housing Element to include an inventory of land suitable for residential development. The purpose is to compare the total holding capacity with the locality's projected construction needs during the time frame of this Housing Element (1989-1994). The locality can then determine if additional government actions are needed to provide enough sites to accommodate its new construction need. This chapter analyzes vacant and under-utilized land, infrastructure availability, and energy conservation.

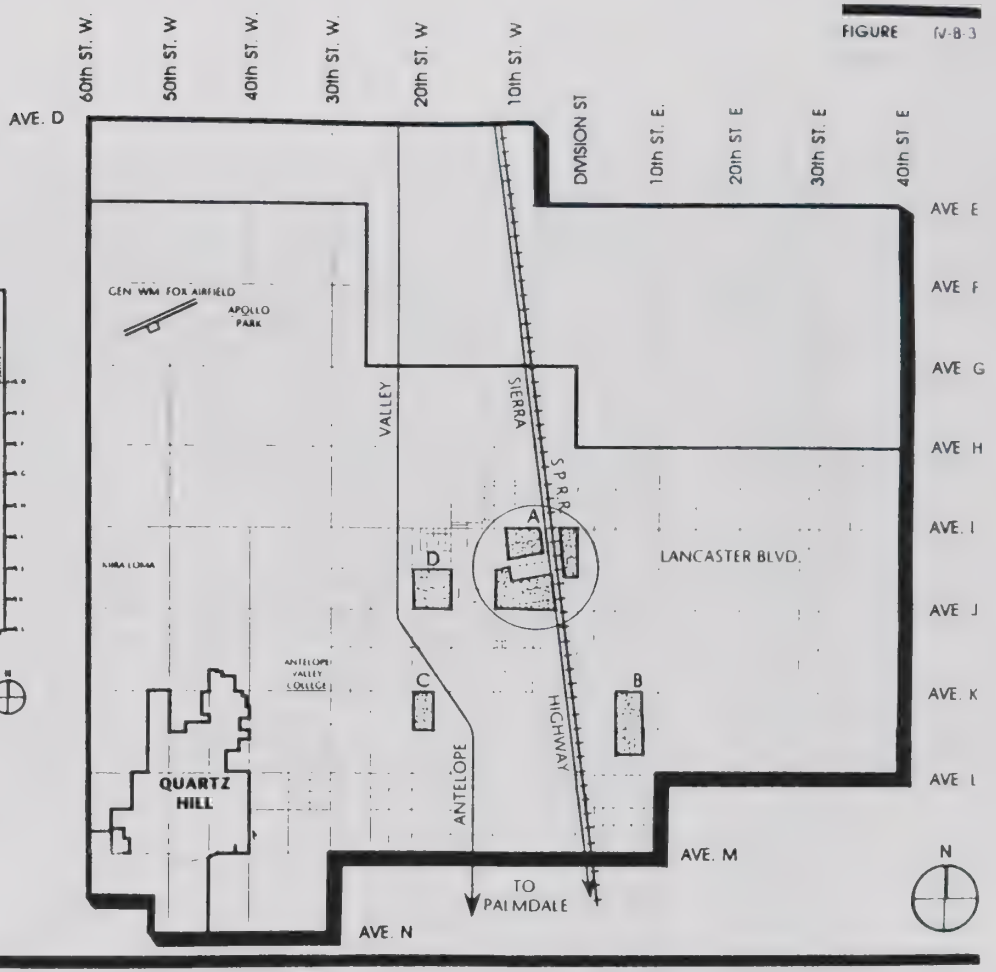
j. Underutilized Land

Underutilized land is defined as an area where a significant number of parcels are developed, but because of lot size/shape, housing type, or other factors, the number of dwelling units is significantly less than what is allowed by existing zoning. Four (4) such areas have been identified within the City, as shown in Figure IV-B-3. A summary is contained in Table IV-B-34.

Area A (Urban Core) The downtown area, generally defined by Avenue I on the north, Division Street to the east, Avenue J to the south and 10th Street West to the west, is underutilized, primarily because existing housing types and lot sizes prevent the land from being developed at the densities for which it is zoned. The present zoning would allow a total of 3,889 units, while only 1,548 units are actually in existence. Out of this total (1,548 units), 208 units are located in the

FIGURE IV-B-3





PLANNING NETWORK

UNDER-UTILIZED LAND AREAS

UNDER-UTILIZED LAND AREAS

CITY OF LANCASTER
GENERAL PLAN

SOURCE: City of Lancaster Community Development Department, 1989.

commercial and industrial zones, and some may be considered as units lost to future residential uses as the land develops for other uses. However, apartments are allowed in the CBD zone, subject to a CUP, and with the potential loss of 208 units, there is also a potential net gain of 2,549 residential units which could be built for future use.

It is not likely that the ultimate buildout of this area under existing zoning would be achieved in the next five years; however, the building of small multiple family projects on vacant lots and additional units on developed lots is encouraged by the City's zoning ordinances. For instance, a 110 unit senior citizen project at the southeast corner of Fern Avenue and Avenue I was built on vacant lots in 1987.

Area B (Bounded by Avenue K, 5th Street East, 10th Street East, and Avenue K-12) This area is characterized by large lots developed with a single family residence. The present R-6000 zoning allows only one dwelling unit per lot, and only those parcels currently vacant or that can be divided can accommodate additional units. Land division opportunities in the area are limited because of lot configuration, location of existing dwellings, and lack of access. There are presently 228 units in the area; and ultimate buildout under existing zoning could yield 580 units. However, out of a total 228 existing housing units, eight units are in a commercial/industrial zone. With the potential loss of eight units to future residential use as the property develops for other uses, there is a net gain of 360 residential units to be built for future housing. Possible actions for increasing the utilization of the area would be to allow additional units on larger lots or by upzoning.

One factor which should be considered when analyzing alternatives for this site is the fact that it is located adjacent to the 100-year flood zone, which is identified in both the General Plan and flood insurance maps. Any actions to increase the number of dwelling units must be weighted against the potential safety risks to residential property.

Table IV-B-34
Summary of Underutilized Land Areas 1988

Area[1]	Zoning	Existing Units	Potential Units Lost[2]	Allowable Units	Potential Net Gain
A	CBD, C, R-7000 MDR-2, HDR-1 HDR-2	1,548	208	3,889	2,549
B	R-6000	228	8	580	360
C	R-7000	138	18	280	160
D	R-6000, R-7000 MDR-1, HDR-1 HDR-2	11	6	970	865
TOTAL		2,025	240	5,719	3,934

Source: City of Lancaster Department of Community Development

1 Refer to text for locations and descriptions.

2 Units currently located on commercial or industrial zoned land. These units are included in the total existing units shown in Column 2.

Area C (Bounded by Avenue K, 17th Street West, Avenue K-8, and 20th Street West) This area is characterized by deep lots with narrow frontages (approximately 67' x 300') developed with a single family residence. The present zoning allows only one unit per lot, so only those lots that are vacant or can be subdivided can accommodate additional units. The present zoning would normally allow a total of 280 units at total buildout. However, because of the deep and narrow configuration of the lots, it is currently possible to achieve only 138 units at total buildout. Since 18 units of the total 138 units are located in a commercial zone, it is likely that there would be only 160 potential residential units. A review of the area disclosed that the rear portions of many lots are not utilized and could potentially accommodate an additional unit. Possible actions to increase the utilization of this area would be to allow second units on large lots by amending the zoning ordinance.

Area D (Bounded by Lancaster Boulevard, 15th Street West, Avenue J, 20th Street West) This area is a combination of underutilized and vacant land. At the present time, the area contains a total of 111 dwelling units, whereas the current zoning allows an ultimate buildout of 970 dwelling units. With six lots already located in a commercial zone, it is likely that there will only be a potential for 865 available units to be developed. The majority of these units would be developed on what is vacant land.

k. Infrastructure and Services Availability

The availability of infrastructure is a key factor in assessing the ability of the City to accommodate housing. The major infrastructure and public service concerns within the City are water, sewer, and schools.

Water Supply The City is currently served by twelve public or private water purveyors (see Municipal Services and Facilities, Figure VI-A-2). Many of these purveyors are small, mutual water companies serving a limited area in the rural portions of the City. The largest of these purveyors within the City is the Los Angeles County Waterworks District (WWD) No. 4, followed by Quartz Hill Water District (QHWD). The WWD No. 4 has a total service area of approximately 36,105 acres as of July, 1988, with approximately 65 percent of that area within the current boundaries of the City and 74 percent of that area within the City's sphere of influence, as established by LAFCo on June 8, 1988.

The City obtains its water from two sources; groundwater and imported State Project Water. Currently, the WWD No. 4 and WWD No. 34, whose water systems are interconnected, have adequate capacity to satisfy the City's existing water needs, but not its existing 24-hour emergency and fire flow requirements. The maximum 24-hour day demand for the City in 1988 was 42.8 mgd, with residential uses comprising nearly 60 percent of the total (see Table IV-B-35). In 1988, the maximum day production of the two Waterworks Districts (WWD No. 4 and No. 38) and the maximum day flows from the State Water Project amounted to 50 mgd. The total storage required for 24 hour emergency and fire fighting under existing maximum day demand conditions is 22.3 million gallons. In order to meet these storage deficiencies, the County proposes to provide an additional 12 million gallons of storage in its capital improvement program now underway at a total cost of $37,150,000. The main purpose of the Capital improvement program is for the two waterworks districts (WW No. 4 and No. 38) to construct more facilities to insure adequate water supply for development anticipated for the next ten years. Sources of funding for these facilities would come from cost sharing agreements with developers; tank capacity charges; standby charges; water rate surcharges; and water rate revenues. Currently, there exists an agreement between Los

Table IV-B-35
Existing Water Demand Summary

Existing (1988 Pop. = 73,500)					
			DEMANDS (mgd)		
Land Use	Total Acres	Developed Acres	Avg. Day[1]	Max. Day[2]	Peak Hour[3]
General Residential (1-2 du/ac)	2,417	967	0.52	0.98	1.80
Residential (3-7 du/ac)	18,805	3,566	7.60	14.44	26.60
Medium Density Residential (7-15 du/ac)	1,563	625	2.00	3.80	6.99
High Density Residential (15 du/ac)	914	366	2.73	5.19	9.56
Industrial	923	246	0.90	1.71	3.15
Light Industrial	5,199	1,159	4.23	8.04	14.82
Commercial	1,285	487	1.78	3.38	6.23
School	269	269	0.98	1.87	3.44
Park	485	407	1.49	2.82	5.20
Hospital	83	83	0.30	0.58	1.06
TOTAL	31,943	8,175	22.53	42.81	78.85

Source: Water System Consolidation Study for City of Lancaster, April 1988.

1 Average Day = Maximum Day/1.9

2 Maximum Day = Meter/ac #ac #1600 gpd/meter

3 Peak Hour + Average Day #3.5

Note: Total and developed acres per land use was estimated from City of Lancaster land use map.

Angeles County Waterworks and a private developer (Hillside Development) to provide $47 million to help fund the Eastside Tank Farm site, located on the south side of Avenue M at 5th Street East. The County has also formed an agreement with Woodacre Ranch Development Company to develop three wells and build a storage tank and booster tanks at Avenue K-8 and 35th Street East.

With the rapid rate of growth in the City and the surrounding areas and the corresponding demand on existing water systems, the County may have to increase its production capacity, in addition to that identified in its capital improvement program by the Year 2010. This increment would enable the County to satisfy the 97 mgd maximum day demand projected for the City by the Year 2010.

Sewer Service Sewer service is provided for the City by Los Angeles County Sanitation District 14, which is currently operating close to capacity. Information from the District indicates that the treatment system has a functional capacity of 6.5 million gallons per day, and that the daily flow in 1988 was estimated at 6.3 million gallons per day. To meet the rapidly growing demand, the District proposes to expand its capacity to 11.6 mgd in 1991 by expanding its sewerage facilities. Should the plant capacity be exceeded in the interim before 1991, the District would adopt the stop-gap measure of aerating the existing oxidation ponds to accelerate the decomposition processes.

Schools With the rapid growth in population, the schools serving the City have been operating above their capacity. To deal with this problem, the school districts have been providing temporary classrooms, or modular units, on temporary school sites until sufficient funds are provided to build permanent structures. Presently, the school districts obtain their funding from the State, the developers (through school impact fees), and the City's Redevelopment Agency. The City Redevelopment Agency allocates school/college trust funds for the schools and the community college in the redevelopment areas (Project Area No.5, the Amargosa Project Area and the Residential Project Area). Also, funds come from AB2926, which is designed to assess individual developments at $1.58 per square foot for residential units and $0.27 per square foot for commercial buildings, for the provision of school facilities (to be shared between school districts).

Other public services and infrastructure, including fire, electricity, gas, etc., are still adequate to accommodate expected growth over the next five years. However, like other systems, extensions may have to be made at the developer's expense in order to develop "outlying" areas.

C. SCHOOL FACILITIES

1. EXISTING SETTING

The Lancaster General Plan study area is served by portions of five (5) separate school districts and one community college. These districts provide educational services, through various grade level configurations, for students in Kindergarten through the 12th grade. There are presently 20 schools within the study area, as well as three additional schools outside of the area, that house local students. Table IV-C-1 lists all of the schools that serve Lancaster, along with their capacities and student enrollment figures. The location of these schools is shown in Figure IV-C-1.

a. Lancaster School District

This district presently houses students in Kindergarten through the 8th grade (K-8) from the east-central portions of Lancaster. The District has twelve elementary (K-6) schools and two intermediate (7-8) schools. All but four of the schools are located within a nine square-mile area of central Lancaster, bounded by Avenue H (north), Avenue K (south), 20th Street West (west), and 10th Street East (east). The four newest schools, Lincoln, Nancy Cory, New Vista, and Lancaster Elementary, are located southeast, southwest, southeast, and southwest of downtown Lancaster, respectively.

Enrollment in the Lancaster Elementary District grew rapidly during the 1980's, primarily due to the construction of new housing. The District presently serves over 11,300 students; its 1984 enrollment was just under 7,000 students. This represents an average growth rate of approximately 1,000 students (or 14%) per year. This growth rate is similar to overall population and housing increases. To accommodate growth, the District built four schools. In addition to one permanent school, three schools were opened with relocatable classrooms to temporarily house students until permanent classrooms are completed. Prior to these three schools, the Lancaster District had not opened a new school in almost 30 years.

The District is presently taking various steps to meet its long-term student housing needs:

- Preparing a long-range demographic study
- Recently formed a Facility Planning Committee
- Currently revising its Master Plan for facilities
- Recently completed a Year-Round Education Study
- Recently completed a Middle School Study
- Recommended additional developer fees

The District has recently completed converted six schools to a year-round school schedules. Six of the 14 elementary schools, as well as the two intermediate schools began year-round classes with the start of the 1990 school year. More than 51 percent of the District's 11,724 students now attend school on a year-round basis. This pilot program allows the District to receive priority funding through the State School Building Program for new schools through the State-wide bond measure which passed in June, 1990. In April of 1990 and March of 1991, voters of Lancaster failed to pass a local $47 million bond (Measure A) to help fund additional classrooms for students. The measure received a clear majority, but failed to achieve the required two-thirds vote.

The District's Middle School Committee has recommended that the District transfer its sixth grade students from the elementary schools to the intermediates, thus converting them to middle schools. This plan was contingent on the addition of two planned intermediate facilities, which would have been funded, in part, by the proceeds from Measure A.

The District is also considering a new developer fee, and proposes an increase to $1.99 per square foot for new homes with a 5 percent annual inflation factor, plus $1.25 for high school development, for a total of $3.24 per square foot. Developer fees are based on a formula that uses the market value of land needed for a school site, and the number of schools needed, based on the number of elementary school students who would be enrolled in the school district after families moved into newly built homes.

b. Westside Union School District

The Westside Union School District serves the western portions of Lancaster, including the communities of Antelope Acres, Del Sur, and Quartz Hill. The District has two K-5 elementary schools located in the Quartz Hill area. The newer Del Sur School serves kindergarten through 8th grade students from the rural and agricultural areas west of the City all the way out to, and beyond, the western study area boundary (190th Street West). The District has one middle school, Joe Walker, located northwest of Quartz Hill. Three additional schools were built during the 1980s, in Leona Valley, Neenach, and Palmdale (Rancho Vista). However, none of these facilities house students from the Lancaster study area.

Enrollments in the Westside schools serving the study area have increased dramatically over the past five years. In 1985, enrollments at the four local schools totalled just over 1,800 students. These same schools are expected to reach a combined enrollment of over 3,200 students in 1990. This represents a five year increase of 1,400 students, or an average annual increase of 16 percent (almost 300 students per year). This growth rate is similar to local increases in population and housing for the same period.

The District built three new schools during the 1980s to accommodate growth from new housing. The Del Sur School, which opened in 1984, has increased in enrollment from 90 students in 1985 to 510 in 1989. The District projects that its enrollment will increase to 715 in 1990 and 780 by 1991, while its permanent capacity is only 692 students. All of the schools that serve Lancaster presently exceed their permanent capacities, and all are being augmented with relocatable classrooms. However, their enrollment will soon exceed even their site capacities, which is the maximum number of students an entire site can house, based on support facilities such as restrooms, fields, library, etc.

Recently, voters in the Westside School District authorized Measure "K", an $8.5 million bond issue to help construct fourteen additional permanent classrooms by February of 1991: ten at the Joe Walker Middle School and four at the Quartz Hill Elementary School.

A combination of bond funds, developer fees, and state building fund monies will also be used to construct the proposed Sundown Elementary School. This new K-5 school will serve students from the growing Del Sur community, and will be located at 68th Street West and Avenue K-4. It is planned to have a permanent capacity of 600 students, but can be expanded, if needed, with relocatable classrooms to house approximately 800 students.

The Westside School District is also planning a number of renovation and rehabilitation projects to accommodate the educational needs of its students. One major joint-use project is in the Larwin Development section of Del Sur Ranch. This facility is planned as a 700-student middle school adjacent to an 18-acre city park.

c. Eastside Union School District

This district serves students living immediately east of the Lancaster School District. It presently consists of two schools located adjacent to each other at the southwest corner of 70th Street East and Avenue H: the Tierra Bonita Elementary (K-5) School and the Eastside Elementary (K-8) School.

Enrollment in the District has increased significantly during the last decade. In 1984, all of the District's 650 students were housed at one school (Eastside). The District then planned to build the Tierra Bonita Elementary (K-5) School next to Eastside by 1985. However, various delays caused the District to instead construct a "temporary" school using relocatable classrooms and trailers. This temporary school is still operating, and presently houses over 500 students. By 1989, total District enrollment had climbed to over 1,200 students, representing a total increase of almost 100 percent. The District has experienced an average growth rate of 110 students per year, or approximately 17 percent annually. This growth is similar to population and housing increases during the same period. The District has just broken ground on a new joint-use school/park facility on 40 acres of City land at 27th Street East and Lancaster Boulevard. This project includes construction of a permanent 10-acre K-5 school adjacent to a 30-acre city park. Modular classrooms will be used to open the school in September, 1990, pending completion of its permanent facilities.

d. Hughes-Elizabeth Lakes Union District

This rural district has only one school, the Hughes-Elizabeth Lakes Union School, that serves Kindergarten through 8th grade students from the Portal Ridge area. Its enrollment increased from 240 in 1984 to 400 by 1989, representing an average growth rate of 30 students per year, or 12 percent annually. The permanent capacity of the site is presently being augmented with relocatable classrooms.

According to local school officials, the Lake Hughes and Lake Elizabeth communities are facing significant new growth in the near future. At present, the likelihood and timing of development depend on plans to expand the Lake Hughes Water Treatment Plant.

The District presently has no enrollment projections, growth forecasts, or Master Facilities Plan. However, the District Superintendent has formed a committee to generally study growth and to specifically examine if or where a new Middle School should be built. If such a facility is built, the existing school would be converted to a K-5 elementary school.

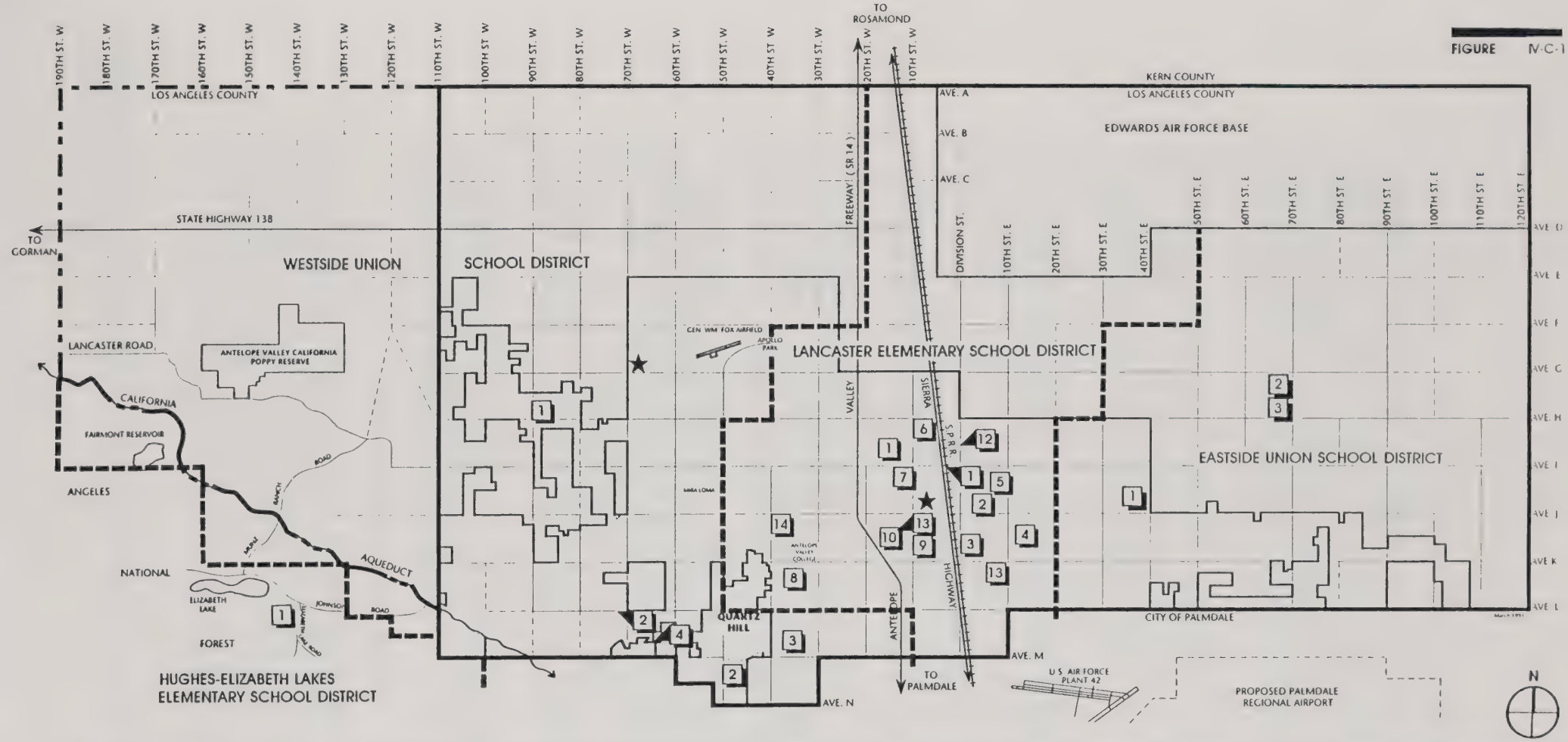
Table IV-C-1
Local K-12 School Facilities[1]

	SCHOOL DISTRICT	Grades Served	Enrollment 1983/1984	Enrollment 1988/1989	Enrollment 1991/1992	Current Capacity[2]
	Lancaster		**6,800**	**9,599**	**11,724**	**12,735**
1	Desert View	K - 6	504	686	807	850
2	El Dorado	K - 6	587	869	780	750
3	Joshua	K - 6	882	1,316	976	1,200
4	Lincoln	K - 6	--	--	854	1,000
5	Linda Verde	K - 6	602	875	751	750
6	Mariposa	K - 6	479	621	570	600
7	Monte Vista	K - 6	822	1,140	979	1,000
8	Nancy Cory	K - 6	--	--	910	1,000
9	Sierra	K - 6	673	1,030	866	850
10	Sunnydale	K - 6	624	1,176	975	1,000
11	Park View	7 - 8	900	1,030	1,122	1,200
12	Piute	7 8	727	856	1,098	1,200
13	New Vista	K - 6			675	675
14	Lancaster	K - 6			361	
	Westside Union		1,820	2,800	3,386	3,180
1	Del Sur	K - 8	90 (K - 5)	510	784	788
2	Quartz Hill	K - 5	620	840	909	788
3	Valley View	K - 5	385	690	544	612
4	Joe Walker	6 - 8	725	760	1,149	992
	Eastside Union		650	1,200	1,805	2,148
1	Tierra Bonita	K - 5	--	500	665	720
2	Eastside Elementary	K - 8	650	700	425	540
3	Cole Middle School	5 - 8			715	888
	Hughes-Elizabeth Lakes Union		240	400	456	460
1	Hughes Elizabeth Lakes	K - 8	240	400	456	460
	Antelope Valley Union High School		4,361	5,311	5,342	4,567
1	Antelope Valley	9 - 12	2,484	2,625	2,871	2,379
2	Quartz Hill	9 - 12	1,877	2,686	2,471	2,188
	TOTAL	K - 12	13,871	19,310	22,713	23,090

1 Includes only those schools that serve students within the study area.

2 School where students exceed capacity have been augmented with portable classrooms.

FIGURE IV-C-1



PLANNING NETWORK

- DISTRICT BOUNDARIES
- DISTRICT OFFICE
- ELEMENTARY SCHOOL (K-5/K-6)
- INTERMEDIATE SCHOOL (6-8/7-8)
- HIGH SCHOOL (9-12)

SOURCE: Planning Network, 1990.

SCHOOL FACILITIES

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e. Antelope Valley Union High School District

This district provides education services for 9th through 12th grade students throughout the Antelope Valley, including Lancaster and Palmdale. High school students within the study area attend either Antelope Valley High School, located in downtown Lancaster, or Quartz Hill High School, located just west of the community of Quartz Hill. In addition to these high schools, the District also operates two alternative programs, both of which are located on the Antelope Valley High School site. These are the Desert Winds Continuation High School; and the Antelope Valley Adult/Independent Study program.

Over the past five years, enrollment at Antelope Valley High School has risen from 2,484 to 2,625 students, which represents an average annual increase of only one percent. During the same period, the enrollment at Quartz Hill High School has increased from 1,877 to 2,686 students, which represents an average annual increase of slightly less than nine percent.

The reason for these differences is that the attendance area of Antelope Valley High School is already largely developed, including the downtown area. During the 1980s, developed areas in general exhibited declining high school populations, while areas with new housing construction often produced a large number of new students. The Antelope Valley High School area is best characterized as a balance of declining number of students from developed areas and additional students from new growth. Since the Quartz Hill High School attendance area had a greater amount of new home building during this period, it is not unusual to see a significant increase in the student population.

The District expects almost 30,000 additional dwelling units to be built within its boundaries over the next five years, with a large fraction of that growth anticipated in the Lancaster area. District figures show that these homes could produce 8,700 high school students. Overall, the District is expecting to grow by over 10 percent per year, reaching a total enrollment of over 20,000 students by 1995.

To accommodate new growth in the Lancaster area, the District has recently opened temporary classrooms for two (2) new high schools which will serve the Lancaster area, although both are located outside of the study area. Littlerock High School has opened with 350 9th grade students this year, and will add a grade each year (move-up by graduation) until 9-12 grades are completely housed by 1994. The second school, Highland High, opened this year with 485 9th grade students, and will complete its opening similar to Littlerock High School. The District is also in the process of purchasing property for a third high school, called Lancaster High, scheduled to open by September, 1993.

The High School District is also looking at another site in Pearland, but there are no negotiations as yet. It should be noted that one of the long range goals of the District is to achieve an enrollment balance among its high schools so that all campuses have between 2,000 and 2,200 students.

f. Antelope Valley Community College

This local college occupies 120 acres at the northwest corner of Avenue K and 30th Street West and serves the entire Antelope Valley. It was originally opened in 1929 on the present Antelope Valley High School site, and moved to its present location in 1961. The College offers a wide variety of technical, as well as college preparatory classes. It presently has an enrollment of 9,000 students, and is projected to reach 13,410 students by 1995-96. The master facilities plan for the college indicates that it can be expanded to house a maximum of 16,000

students. The colleges capital improvement plan lists 15 expansion projects (costing $45 million) to be phased over the next five years. Half of these projects require the construction of additional buildings, while the other half involve interior remodeling or field renovation. This plan is updated every year based on actual costs and funds available.

By the school year 1998-99, the College projects that its enrollment will exceed its maximum capacity. It is already investigating the purchase of an additional community college site. According to the Campus Planning Office, it is most likely that such a facility will be located somewhere in the central or south central portion of the valley.

g. Cooperative Programs

The local school districts in the Lancaster area cooperate with the City on a variety of recreational programs, primarily through Joint Powers Agreements (JPAs). Both high schools in the study area (Antelope Valley, Quartz Hill) have athletic stadiums, as well as gymnasiums. A number of existing schools are already adjacent to City parks, while several planned schools will incorporate City parks (e.g., Del Sur Ranch, etc.). None of the districts currently operate any ongoing instructional programs in conjunction with the City, such as child care, other than recreation.

h. Four Year Colleges

At present, there are no four-year educational institutions within the Antelope Valley. The closest State Universities are in Los Angeles (CSULA), San Bernardino (CSUSB), and Northridge (CSUN). CSULA and CSUN are both almost 60 miles from Lancaster via Highway 14, while CSUSB is approximately 70 miles from Lancaster. The closest University of California (UC) is in Los Angeles (UCLA), also 70 miles distant via Highway 14.

A committee of local civic, education, and business leaders, called the Antelope Valley Board of Trade High Desert University Committee, is presently trying to attract a four-year institution to the valley. Most of the committee's efforts to date have focused on securing a UC campus, although they are also actively pursuing a California State University (CSU) or private college. It is anticipated that the potential service area of such an institution would be approximately 1.4 million people by 1995.

The California State University at Los Angeles (CSULA) has indicated it can begin offering classes at an "education center" in the Antelope Valley almost immediately. This center would be the first step towards eventually locating a full CSU campus in the Valley.

2. ANALYSIS

The local school districts presently vary slightly in their estimates of student generation rates for Lancaster households (see Table IV-C-2).

The Southern California Association and Governments (SCAG) estimates that approximately 84,357 new housing units will be built in the Lancaster General Plan study area over the next 20 years[1]. To calculate the approximate number of

[1] Of these, 68,069 units are expected to be constructed within the City of Lancaster and 16,288 are expected to be constructed in unincorporated areas.

students in Lancaster in twenty years, SCAG's projected housing units was multiplied by the average student generation rates. Through this calculation, local school districts can expect about 38,800 elementary students and 25,300 high school students[1]. To put the magnitude of these numbers in the perspective school facilities, this level of growth in student enrollment would require approximately 100 new elementary schools and ten high schools to be built by the year 2010, or an additional five elementary schools each year and one new high school every two years for the next 20 years.

Table IV-C-2
Student Generation Rates

School District	Grades	Students Generated Per Household
Lancaster	K-6	0.45
	7-8	0.15
Eastside Union	K-8	0.50
Westside Union	K-8	0.45
Antelope Valley Union High	9-12	0.20

Average Generation Rates

Grades	Students Generated Per Household
K-8	0.47
9-12	0.20

Source: Lancaster, Eastside Union, Westside Union, and Antelope Valley Union High School Districts, 1991.

Most school districts base their facility plans largely on their own enrollment histories and projections, without making direct comparisons to municipal or regional projections. Information and projections, developed as part of the General Plan process, could be shared with local school districts to help their projections more accurately reflect City projections.

[1] Of these, 31,312 K-8 students will be generated within the Lancaster city limits, along with 20,420 high school students. The balance will be generated in unincorporated areas.

Although the City does not directly influence educational service and it is the responsibility of the State to fund school facilities, it is in the best interests of both the City and the school districts to cooperate with one another to help facilitate the construction of new schools. Student populations are increasing at 8-15 percent per year, and will continue to increase as the City builds out. Under present law, local agencies cannot deny a residential development project on the basis of inadequate schools. The only exception is in the case of changes of zone, which would increase development intensity. Developer fees were designed to relieve all required school mitigation. However, with the present and projected condition of the state school building program, the presently approved local developer fees will not be adequate to build the additional schools that are needed. A review of the legislative history that led to developer fees shows that the state knew local fees would not be sufficient to fully fund new schools. Rather, the money was intended to provide the local match portion for the State's lease purchase program. A significant source of local funding would have been provided with the passage of a $47 million school bond (Measure A) in April, 1990. However, this measure was rejected, so local school districts will need to arrange alternative funding, such as additional bond issues or community facility districts, to fully fund future schools.

To help facilitate public-private cooperation, the City could act as an intermediary between, or partner with, local school districts and developers. The City's daily experience in working with developers and private interests could benefit school districts in negotiating agreements for new schools and school sites, such as the school to be located in the Del Sur project within the Westside School District.

It will be necessary for Lancaster, as it will be for all growing communities in California, to find alternative methods of financing school facilities. Although there are many financing mechanisms, money comes from three sources: local taxpayers, state taxpayers, and developers. There are two avenues for the City and local school districts to pursue: they can become aggressive in searching for innovative approaches to building schools, or they can accept nonpermanent buildings as a solution to school construction financing.

In the first avenue, there are several approaches. Assessment or Mello-Roos districts could be formed where new homeowners are taxed to develop facilities that are required, such as schools. This would provide up-front money with which to build schools.

Tax increment bonds through the Lancaster Redevelopment Agency are another potential approach to finance schools, especially in the downtown area (Lancaster Elementary). Although the State is responsible for building schools, it is often three to five years before money is allocated to build the facility, even if the need is critical. Through tax increment financing, the school district borrows money from the Redevelopment Agency to build the school. The Redevelopment Agency is repaid when State funds become available. This could help school districts through the immediate "cash flow" problems typically experienced as state monies are used up early in the year.

Another innovative approach may be the private financing of schools through a variety of programs such as a lease-purchase program that has been successfully used by the Los Angeles Unified School District. The Bravo Medical Magnet School in East Los Angeles was built through a certificate of participation. In this program, a third party takes title to a piece of capital, while the school district leases the item.

The second avenue is less aggressive and accepts the limitations on what facilities can be provided, given current school finance programs. The reality for the City may be that nonpermanent school buildings are the only feasible means to educate children and keep the cost of housing affordable. Although parents strongly support measures to build schools for their children, it is extremely difficult to receive the two-thirds vote that is necessary to pass a bond measure. Not all residents may be willing to pay higher taxes to build schools. The failure of the $47 million school bond (Measure A) in April 1990 is an indication of this view.

The City and local school districts may wish to pursue more cooperative instructional or support programs, such as:

- child care (e.g., pre-schools or day-care centers)
- public/private sponsorships of schools
- internships
- community mentor programs
- student work day City beautification projects
- drug abuse resistance education (D.A.R.E.) programs
- gang resistance education
- Project Self Esteem

Such programs foster and improve inter-governmental cooperation and would provide local citizens and students with an increased level of educational, as well as community service opportunities.

Recently, the State Department of Education has indicated that school districts should investigate and begin implementing year-round schools. The implementation of a year-round school schedule may reduce the amount of time school facilities are available for community use. However, such a schedule could lend itself to more cooperative programs with the City, especially during the summer months, when children are typically out of school and there is a lack of constructive, organized activities. Such a schedule might also affect gang activity by reducing the large amount of idle time now available to youths during the summer. It would also reduce the number of youths available for gang activities at any given time.

Public or private child care programs could utilize school facilities and be staffed by City, school district, or private personnel. Regional Occupational Program (ROP) students from the local high schools could also be used as volunteers to staff such centers.

A four-year institution would provide significant benefits (e.g. education, recreation, economic, etc) to residents of the entire Antelope Valley. The City and the Board of Trade Committee plan to continue their efforts to acquire one or more four-year institutions, either public or private. Active support by the City would include identifying potential sites for a four-year institution in the Plan for Physical Development. Selected sites would include adequate roads, freeway access, support services, affordable housing, and the availability of affordable rental housing in the immediate surrounding area.

D. PARK AND RECREATION FACILITIES

1. EXISTING SETTING

Recreational facilities in the north Antelope Valley are operated by the State of California, County of Los Angeles, the City of Lancaster, and private groups

a. County and State Facilities

The Los Angeles County Department of Parks and Recreation is responsible for Apollo Park and George Lane Park, both located within Lancaster's sphere of influence. The Area Headquarters for the California State Parks Department is located in Lancaster at Avenue G and 40th Street West. State Park facilities located within the area are the California Poppy Reserve and the Saddleback Butte State Park. The Antelope Valley Fairgrounds, located at Division Street and Avenue I, is part of the California State Fair System.

Apollo Park is a 56 acre regional park located between Avenues G and H, just east of Fox Field (see Figure IV-D-1). This park contains an actual mock-up of the Apollo Space Capsule. Among recreational facilities available at this park are a picnic area and fishing in three interconnected lakes. These lakes were named after the Apollo 11 Astronauts: Neil Armstrong, Edwin "Buzz" Aldrin, and Michael Collins. The lakes, covering 26 acres, are filled with 80 million gallons of reclaimed water, and are stocked with fish.

George Lane Park is located at the southwest corner of Avenue L-8 and 55th Street West. This 15 acre park provides facilities for softball, basketball, and picnicking; a swimming pool; two meeting/craft rooms; and an auditorium. The Park also conducts programs and provides facilities for T-ball, adult softball, youth soccer, youth football, karate, wrestling, preschool, and dance classes. In addition, George Lane Park hosts the Quartz Hill Chamber of Commerce Annual Almond Blossom Festival.

The Antelope Valley Fairgrounds, located at Division Street and Avenue I, is also known as the Fiftieth District Agricultural Association of the California State Fair System. The 80 acre fairgrounds contain seven assembly halls, an auction area, livestock barns, a horse arena, a recreational vehicle block, an outside barbecue area, two buildings that can be rented by the public, and a grandstand that seats over 5,000 people.

The California Poppy Reserve, which is located 13 miles west of the Antelope Valley Freeway on Lancaster Road, is part of the State Park System. It occupies approximately 1,700 acres with 8.5 miles of nature trails. The Reserve was created to preserve the wildflowers in the Antelope Valley, specifically the California Poppy. Open primarily in the spring, the Reserve is strictly for day use; it has no camping facilities, playgrounds or other recreational facilities, except a small picnic area. The Visitor's Center, also known as the Interpretive Center, housed in an 1,800 square foot building, is open daily from mid-March to mid-May, its busiest time of the year. In the spring, approximately 30 to 40 volunteers work in the interpretive center. The center has exhibits on wildflowers, a video presentation area, an area for the sale of books and souvenirs, and an exhibit on wind energy.

Saddleback Butte State Park is a 2,300 acre recreational facility, located 17 miles east of Lancaster, just outside the Lancaster General Plan study area. The park contains 50 family campsites, picnic facilities, hiking and nature trails, and a visitor's center containing exhibits of the local animals, history, archaeology and geology.

b. City Facilities

The City of Lancaster Parks, Recreation, and Arts Department supervises and maintains park, recreational and cultural facilities in Lancaster. The City owns, operates, and maintains 103.7 acres of developed parkland. Existing parks include Eastside Park, El Dorado Park, Jane Reynolds Park, Lancaster City Park, Mariposa Park, and Rawley Duntley Park. Undeveloped park sites include Del Sur Park, Challenger Park, Avenue H/15th Street West Retention Basin, Tierra Bonita Park, Hull Park, and a portion of Rawley Duntley Park (Figure IV-D-1).

Rawley Duntley Park is located in the western portion of the City at the southeast corner of 35th Street West and Avenue K. The park consists of 19 acres, of which 14 acres are presently developed. Facilities provided at Rawley Duntley include an open play area, children's play area, picnic facilities and group picnic area, basketball courts, lighted baseball field, and volleyball courts.

El Dorado Park is located in the central core of the City at the northwest corner of 5th Street East and Pondera Street. Services provided at this 6.5 acre park include an open play area, a children's play area, meeting room facilities, picnic facilities, tennis courts, a lighted softball field, and an exercise trail.

The 78 acre Lancaster City Park is located south of downtown Lancaster at the corner of 10th Street West and Avenue K-8. Among the available facilities at the developed 58 acres of the City Park are a multi-purpose room, an auditorium, a children's play and an open play area, meeting rooms, picnic facilities and a group picnic area, tennis courts, basketball courts, four lighted softball fields, volleyball courts, and soccer fields. The Stanley Kleiner Activity Building is located on the park premises and contains indoor youth-size basketball courts. Youth basketball games and practices are held here, as well as some City classes and meetings. Lancaster City Park also houses the annual Summer Concert Series, at which approximately seven concerts of popular music of the past are performed, free to the public.

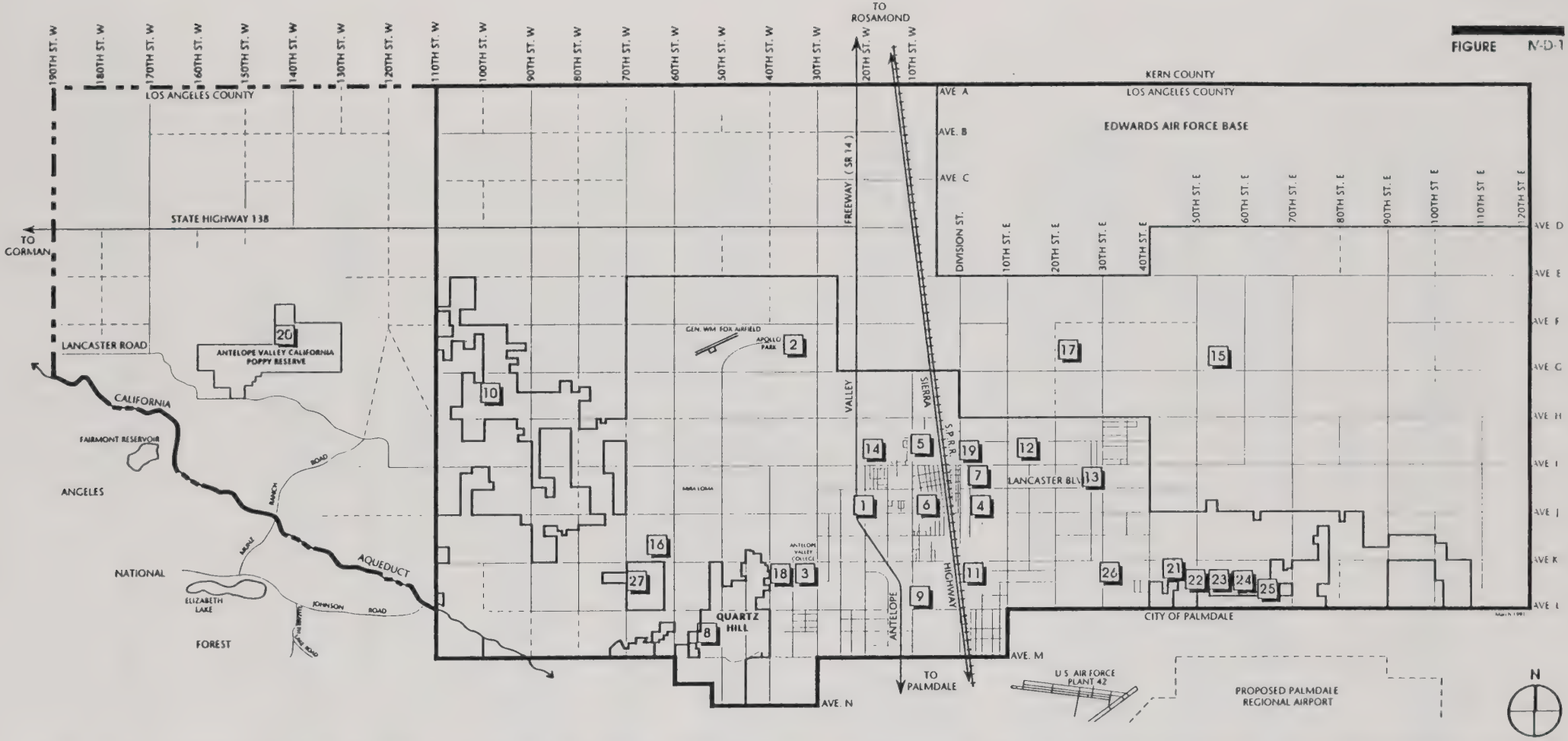
Mariposa Park is also located in central Lancaster at the southwest corner of North Fig Avenue and Avenue H-4. This 6.5 acre park provides an open play area and a children's play area, a meeting room, picnic facilities, an exercise course, and an unlighted softball field.

Jane Reynolds Park consists of 6.7 acres at the northeast corner of Fig Avenue and Avenue J. Facilities provided at this park include an auditorium, a seasonal swimming pool, a children's play area, as well as an open play area, meeting room facilities, a tennis court, basketball, a lighted softball field, volleyball court, horseshoe courts and picnic facilities.

Eastside Park and Pool is located on 12 acres at the southwest corner of 5th Street East and Avenue I. Among the services provided at this park are a year-round enclosed swimming pool, an open play area and a children's play area, picnic facilities, and a lighted softball field.

The Lancaster Museum/Art Gallery is also owned and operated by the Parks, Recreation and Arts Department. Located at Sierra Highway just south of Lancaster Boulevard, the Museum/Art Gallery contains temporary exhibits of local as well as international artist's works. The Lancaster Performing Arts Center, located on Lancaster Boulevard between Fig and Fern Avenues, is currently under construction. The Western Hotel, Lancaster's oldest standing building, also operated by the Parks, Recreation and Arts Department, is located on Lancaster Boulevard just west of Sierra Highway. The Cedar Avenue buildings,

FIGURE N-D-1



PARKS AND RECREATION FACILITIES

PLANNING NETWORK

1. Stanley Kleiner City Park
2. Apollo Regional Park
3. Rawley Duntley Park
4. El Dorado Park
5. Mariposa Park
6. Jane Reynolds Park
7. Eastside Park
8. George Lane Park
9. Lancaster Park
10. Del Sur Park*
11. 5th Street East/Avenue K Retention Basin*
12. 15th Street East/Avenue H Retention Basin*
13. Tierra Bonita Park*
14. Hull Park*
15. Rancho Sierra Golf Club
16. Meadowlark Golf Club
17. Municipal Golf Course*
18. Prime Desert Woodland*
19. Antelope Valley Fairgrounds
20. California Poppy Reserve
21-25. Serrano Ranch Park Sites*
26-27. Proposed Park Sites*

* Proposed Facilities

SOURCE: Planning Network, 1990.

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located at Cedar Avenue and Lancaster Boulevard, are owned by the City of Lancaster and will be rehabilitated for use by the Parks and Recreation and Arts Department for museum exhibits, cultural arts programs, and other community uses.

The Parks, Recreation and Arts Department currently sponsors the following sports programs:

Spring/Summer and Fall softball leagues	Youth Flag Football
Youth and Adult basketball	Youth Spring and Summer T-Ball
Women's and coed soccer	Youth Track and Field Meet
Swimming lessons	5K, 10K Distance Run
Tennis lessons	Park Supervision

Other activities organized by the Department include: special classes; a Fourth of July Celebration held at the Antelope Valley Fairgrounds; a Halloween Celebration; an Annual Christmas Float Tour; Summer Day Camp sessions; and a Summer Drop-In Program, family and pre-school excursions, "straight up" teen programs, and performing arts programs beginning late in the Spring of 1991.

c. Senior Facilities

Los Angeles County operates a recreation/nutrition program at the Antelope Valley Senior Center, located at Jackman Avenue. Activities include: van trips, a ladies' pool group, a men's pool group, and a variety of classes, such as exercise classes, singing classes, arts and crafts classes, and needlepoint and sewing classes. Weekly events include dances, films and bingo, among others.

d. Private Recreational Facilities

Bermuda Resort is a fitness and reducing spa, located between Avenues K and L at 43019 Sierra Highway. The resort has live-in, as well as daily programs for patrons. Services and activities provided include: an indoor pool, an outdoor pool, spas, saunas, a 1/2 mile trail around a duck pond, and an exercise physiologist and registered dietitian, along with others.

Rancho Sierra Golf Club is located at the southwest corner of 60th Street East and Avenue F-8. Facilities at this privately owned nine-hole public golf course also include club rental and snack bar.

Meadowlark Golf and Recreation Club is located at the northwest corner of 60th Street West and Avenue K in Quartz Hill. The Club is available for private parties and has a pool and picnic area. The golf course is a 9-hole, par-three course which is also open to the public. Meadowlark has a driving range, picnic area, horseshoe pits, and a coffee shop.

e. Future Park Sites and Proposed Park Developments

A total of 106 acres of municipal park sites are scheduled for development over the next five years:

- A master plan, which includes a new activity building, has been prepared for the five-acre undeveloped portion of Rawley Duntley Park;

- A 36-acre retention basin between Avenues H and H-8 and 12th and 15th Street West has been considered for development into a recreational facility, such as a soccer field or baseball diamond. A preliminary master plan has been prepared, but certain requirements and responsibilities must be clarified for development to take place. The City must also find additional funding sources to develop the park;

- A master plan has been approved to develop Tierra Bonita Park, a 29 acre park at the northwest corner of Lancaster Boulevard and 30th Street East. The master plan includes a gymnasium and multi-use rooms, two lighted softball diamonds, athletic turf wear, tennis courts, volleyball courts, basketball courts, picnic facilities, and a children's play area;

- Hull Park, located at Avenue J and 18th Street West, is a five acre parcel donated to the City for use as a municipal park. It is being planned as either a senior center or passive park, and will, therefore, contain no active facilities other than a children's play area and public restrooms. If the park is developed into a senior facility, it will include a full-service kitchen in order to provide a larger place for the Meals on Wheels program, a home delivered meal program for the disabled and senior citizens. Currently, food for the Meals on Wheels program is prepared at the Mira Loma Detention Facility;

- Two other gymnasiums have also been proposed for development; one at Del Sur Park and the other at Lancaster City Park. An outdoor amphitheater is being considered at Lancaster City Park;

- A municipal mini-golf course at 20th Street East, between Avenues F and G, has been discussed for some time between Los Angeles County, which owns the site, and the City of Lancaster. As yet, no agreement has been reached;

- Del Sur Park, an 18 acre site, located at 100th Street West and Avenue G;

- Challenger Park, a 13 acre park/retention basin site, located at 5th Street East and Ave. K.;

- Prime Desert Woodland Site I;

- Cedar Avenue Buildings

The 70.5 acre Prime Desert Woodland Site I, which the City of Lancaster is gradually acquiring from private owners, is a potential recreational facility/nature center. This site is located west and southwest of Rawley Duntley Park between 35th and 40th Streets West and Avenue K to Avenue K-9. An entry/patio/trellis area and an alcove area are being planned, with a pathway leading to a covered walkway in which plexiglass cases will separate exhibits of past and present flora and fauna of the area. Although the development of the trails has begun, the City of Lancaster does not expect to acquire the entire Prime Desert Woodland site until July 1991.

The Prime Desert Woodland site will be acquired through development dedications and other municipal funds which have been allocated specifically to acquire these woodlands. Approximately four to five other sites of Prime Desert Woodlands have been identified, yet there have been no other plans of acquisition and development of these areas.

Additional Programs The City is presently conducting teen programs and exploring possible facilities to combat rising gang activity. Currently, Lancaster City Park, El Dorado Park, and Rawley Duntley Park are providing activities for teenagers in Lancaster.

f. Future Recreational Needs Assessment

Due to increasing growth, the City will need to meet additional recreational needs. For example, gymnasia are needed for youth and adult basketball and volleyball. Presently, the only gymnasium space is at the high schools and the Stanley Kleiner Activity Building at Lancaster City Park. Additional gyms have been proposed, though not yet funded, at three parks. The opening of year round schools within the Lancaster area will reduce the public use time of school facilities and recreational programs and must, therefore, be considered in the acquisition and development of joint school and recreational facilities. No public golf courses exist in the City, although one is proposed east of the Sierra Highway. The City has one year-round and one seasonal pool. However, according to National Recreation and Park Association (NRPA) standards, at least two to three other pools are needed to serve City residents. A lighted practice field has also been requested for the growing Lancaster Youth Football program.

g. Trails

Presently, the only designated trails in the City of Lancaster are within the Prime Desert Woodland Site. The Amargosa Drainage Channel, a flood control channel located next to the Antelope Valley Freeway between Avenues G and K, is a potential trail system within the City of Lancaster. The channel could be acquired from Los Angeles County and turned into a linear greenbelt trail system, which could include hiking, biking and equestrian uses.

The Antelope Valley Area Plan of Los Angeles County proposes trails along several major roads into the City, including Avenue J (west of 40th Street East), Sierra Highway, 60th Street west (South of Avenue I), and Avenue G. One of the major proposed County trails, called the North Side trail, runs along the northern edge at the California Aqueduct. A proposed branch of this trail would extend northward along 60th Street West, at which point the City trails could be connected. This trail is now open for biking use only. A multi-use trail network is currently proposed by the Antelope Valley Trails Council and takes advantage of existing scenic, topographic, biological and recreational resources. Part of the network uses rights-of-way along major roadways or electric utility corridors to help complete this recreation network. Most electric utility corridors, for example, are limited to greenbelt areas with agricultural or horticultural settings with a limited height of fifteen feet. Park-like settings are generally discouraged to avoid large gatherings of people at one time, and buildings or structures are generally not permitted on such sites without written permission of Southern California Edison. Other types of uses that deviate from these basic guidelines are also required to receive written permission from Southern California Edison. These potential trails could be a combination of equestrian, bicycle, and/or hiking trails to provide a complete recreation network among open space resources.

h. Funding

The major sources for funding of park and recreational development are general City revenues and developer's fees. A Park In-Lieu fee has been recently adopted and is being implemented. Another source, the State Bond Act Program, has generated an average of approximately $225,000 toward development projects every two years. A Community Development Block Grant has been approved for a room addition and improvement of acoustics in the activity building for Jane Reynolds and Mariposa Parks. The Los Angeles County Safe Neighborhood Parks, Gang Prevention, Tree Planting, Senior Recreation, Beaches and Wildlife Bond Act, if passed, will provide enough funding to the City of Lancaster to acquire the Prime Desert Woodland Site I, and may provide funding for future projects.

The City may wish to consider forming three community facilities districts (CFDs) based on the three park planning areas (west, central, east). These CFDs could be used to provide a gymnasium, pool, regional park: two community parks in the eastern and western planning areas and one in the northwest portion of the central planning area.

Various neighborhood parks can be planned as part of residential developments, but should be planned and generally located as part of the General Plan process. There are significant natural recreation resources available in the Portal Ridge area that could be incorporated in developments in the western third of the study area.

The City, as well as the entire Antelope Valley, presently lacks any sizeable commercial entertainment/recreation facilities, including water recreation facilities or golf course/resort. Such facilities could generate significant revenue to the City as the population continues to grow.

2. ANALYSIS

a. Future Parks

Figure IV-D-1 shows existing and proposed recreational facilities. The City of Lancaster currently maintains a total of 103.7 acres of developed parkland within the Lancaster area. If based only on City population and the parks maintained and operated by the City of Lancaster (103.7 acres), there are 1.17 acres of developed parkland per 1,000 residents (using a current population of 88,732). Including the Los Angeles County parks facilities of Apollo Park and George Lane Park, 1.53 acres of parkland per 1,000 residents serve the Lancaster community (including City and unincorporated residents).

The Lancaster study area contains 226.5 acres of proposed parkland. When these parklands are developed, the Lancaster area will be served by a total 330.2 acres of City facilities, or 402.2 acres including the County facilities. Based on the mid-range population projection for the year 2000 of 152,798 people (see Table IV-A-8), this would equal 2.63 acres of parkland per 1,000 population.

By resolution, the City requires dedication of 2 acres of land per 100 dwelling units or payment of an equivalent fee. Considering the average population of 2.65 persons per dwelling unit, this translates to 2 acres per 265 people.

In addition to existing and projected City parks, California Springs is proposing two five-acre parks, one fifteen-acre park, and one eighty-acre park. Other recreational amenities proposed for that project include two eighteen-hole golf courses and three lakes. A 244-acre nature preserve is also proposed on the north face of Fairmont Butte. Based on the City's goal of three acres of parkland per 1,000 population, 145 acres would be necessary, rather than the 105 acres proposed.

The City is divided into three major sectors (or cores) for planning purposes: Western; Eastern; and Central. All of the developed parklands, with the exception of Rawley Duntley Park, are located in the Central Core (Figure IV-D-1). Plans for development within each core should consist, at a minimum, of the following facilities:

- A Community Park (minimum 50 acres)
- A Pool
- A Gymnasium
- A Neighborhood Park (12 - 25 acres) adjacent to each major residential development.

The City had pursued a policy of emphasizing quality facilities over the quantity of park lands. As a result, the City may be short of its acreage goal, but it maintains excellent and extensive facilities to serve its residents.

Careful attention needs to be given to the location and type of each new facility. While larger facilities are more economical to build and maintain, they may not provide adequate access to all residents. Typically, parks are considered to have "service areas". Based on the size of a particular park, residents beyond a certain distance are not considered to be adequately served by the park. According to "Urban Planning and Design Criteria" (1988), these service areas are generally considered to be:

Park	Service Area	Min. size
Local (neighborhood)	1/2 mile	10 acres
Community	2 miles	20 acres
Regional	10 miles	50 acres

Figure IV-D-1 provides a visual comparison of the service areas of existing parks facilities within the Lancaster area. The existing regional facilities are adequate only for current City residents of the central area. In particular, the northwest area of the City appears to lack community park facilities. The eastern and western areas of the City are deficient in neighborhood, community, and regional parks.

The site of the proposed California Springs planned community is located immediately adjacent to the 1,753-acre Antelope Valley California Poppy Reserve and the Angeles National Forest. These areas may receive significant impacts if an additional 48,540 people are located near these areas. As the closest regional park, the Poppy Reserve would be affected by the increase in demand, possibly exceeding the park's carrying capacity. During the peak season, March through May, when the wildflowers are in bloom, as many as 100,000 visitors currently come to the park.

Recreation in the Angeles National Forest, Lake Hughes and Lake Elizabeth will increase with the addition of the California Springs population. It will be important to mitigate the effects of heavy future use of these recreation areas through such measures as increased user fees, additional parking and roads, and increased maintenance of the areas.

The City may also wish to concentrate on developing a trails system to connect existing and proposed park facilities. The Amargosa Drainage Channel, once acquired from Los Angeles County, could be developed in a similar manner to the award-winning Kern River Parkway, which is located within the City of Bakersfield. This parkway design took into consideration the community's need for recreation facilities, and desires of the public. Among the types of facilities found in the approximately 1400-acre Kern River Parkway are: volleyball, walking and jogging paths, picnic areas with barbecue pits, horseshoe pitching areas, restrooms, physical fitness stations, bird watching areas, an archery range, seating areas, equestrian staging areas, canoeing and rowing areas, a battery-powered model airplane, and boat and car areas. Besides providing recreation, preserving sensitive biological resources, and providing flood control, water conservation uses are also emphasized by the project.

The City may want to support and become involved in the Antelope Valley Trails Council's Recreational and Multi-Use Trails Plan For The Antelope Valley. The goal of this proposed trail system is to connect the high desert of North Los Angeles County and East Kern County to the Pacific Ocean shoreline in Ventura County. The Plan will accommodate population growth and land use by designating areas for parkways and trails.

Additional funding for new parks and regional facilities will be needed to reach the City's goal of three acres per 1,000 persons. The continued evaluation of developer fees, the collection of in-lieu recreation fees, and a combination of other funding mechanisms will help distribute the cost of providing park facilities in an equitable manner among new and existing residents.

E. PEDESTRIAN, EQUESTRIAN, AND BICYCLE TRAILS

1. EXISTING SETTING

This section identifies the opportunities available to the City regarding the establishment of a trails system for pedestrian, equestrian, and bicycle use. A diverse parks and trails system which provides a broad range of recreational activities is important to the quality of life for Lancaster residents. The City's ultimate intention is to establish a multi-purpose trail system that not only links the incorporated cities of Lancaster and Palmdale and the unincorporated areas of the Antelope Valley, but also connects to parks, schools, open space, and scenic areas in the study area. This network of trails will be a recreational resource, but will also provide opportunities for alternative modes of transportation.

a. Existing Trail Facilities

Pedestrian and Equestrian Trails The City of Lancaster presently has informal nature paths within the Prime Desert Woodland Site within Rawley Duntley Park. In the future, the City plans to delineate these trails more clearly, along with erecting guard rails to keep patrons out of the fragile woodlands. Currently, these are the only trails that exist in Lancaster, although there are plans for others. Serrano Ranch, a recently approved master-planned community of approximately 1,650 acres, roughly bounded by 40th Street East, Avenue J, 70th Street East and Avenue L, will include an extensive network of pedestrian/bicycle trails. These trails will link residential areas to the school and park sites, as well as proposed community commercial facilities. In addition, one equestrian trail is designed to link the estate areas west of the site to Little Rock Wash.

Bike Lanes *Bike* paths or lanes are defined as any facility reserved for the exclusive or semi-exclusive use of bicycles and related vehicles. The City of Lancaster has striped bicycle lanes on a few streets. Existing bike lanes are provided on Avenue L between 70th Street West and 20th Street West, on 30th Street West between Avenue L and Avenue J, on two segments of Lancaster Boulevard, and on portions of 5th Street East and 15th Street East.

Previously, Lancaster had other bicycle lanes throughout the City. However, as the City grew and traffic volumes increased, bicycle lanes were removed to provide automobile lanes. The bike lanes were located in the rights-of-way and were, therefore, lost when City streets were improved. In the 1980 General Plan, the City proposed several bike facilities in the rights-of-way of existing arterials. Along the same arterials, turn lanes and roadway expansions were also proposed. As a result of this conflict, the City lost several additional existing and proposed bike lanes.

A transportation fund was established by the Transportation Development Act and requires each county in the state to annually set aside two percent of the total fund to develop bicycle and pedestrian facilities. This fund was intended to meet the needs of a bikeway transit system in California. The City of Lancaster has been allocated a portion of the Los Angeles County funds to be used for the construction, right-of-way acquisition, and preliminary engineering exclusively for the use of bicyclists and pedestrians. The Lancaster City Council adopted a resolution to use the money for Class II bikeways on 30th Street West along Avenue J to Avenue I, on Lancaster Boulevard from 20th Street West to 30th Street West, and Avenue J-8, from 25th Street West to 30th Street West. The City is further proposing to add additional bikeways within the public right-of-way, as identified in Figure IV-E-1.

Although the City has adopted a plan for future bike lanes and allocated funds for this purpose, there is no guarantee that bike lanes will not be lost again due to street widening. For this reason, a separate trail system outside the right-of-way is needed.

California Aqueduct Bikeway The California Aqueduct Bikeway is located in the southwestern portion of the study area along the California Aqueduct. This bikeway has been developed on the paved service roads which run beside the canal section as part of the State Water Project. The bikeway has been closed since 1988 due to channel improvements. The Recreation Planning and Implementation Division of the Department of Water Resources will conduct an assessment study of the bikeway in 1991 and anticipate its reopening sometime in 1992 (Program Manager, Recreation Planning and Implementation Division of the Department of Water Resources, 1990).

The bikeway is available to bicyclists and hikers, and can be entered from any bikeway parking area or from any road which crosses the Aqueduct. Motor vehicles are not permitted. Rest stops with toilets, picnic tables, drinking water, and shaded areas, are placed along the bikeway in the Antelope Valley at approximately 10 mile intervals. There are no facilities located within the study area. The bikeway is normally open every day during daylight hours.

b. Development of Bikeways

Future bikeways must be designed in accordance with appropriate Federal and State standards and are classified in the following classes:

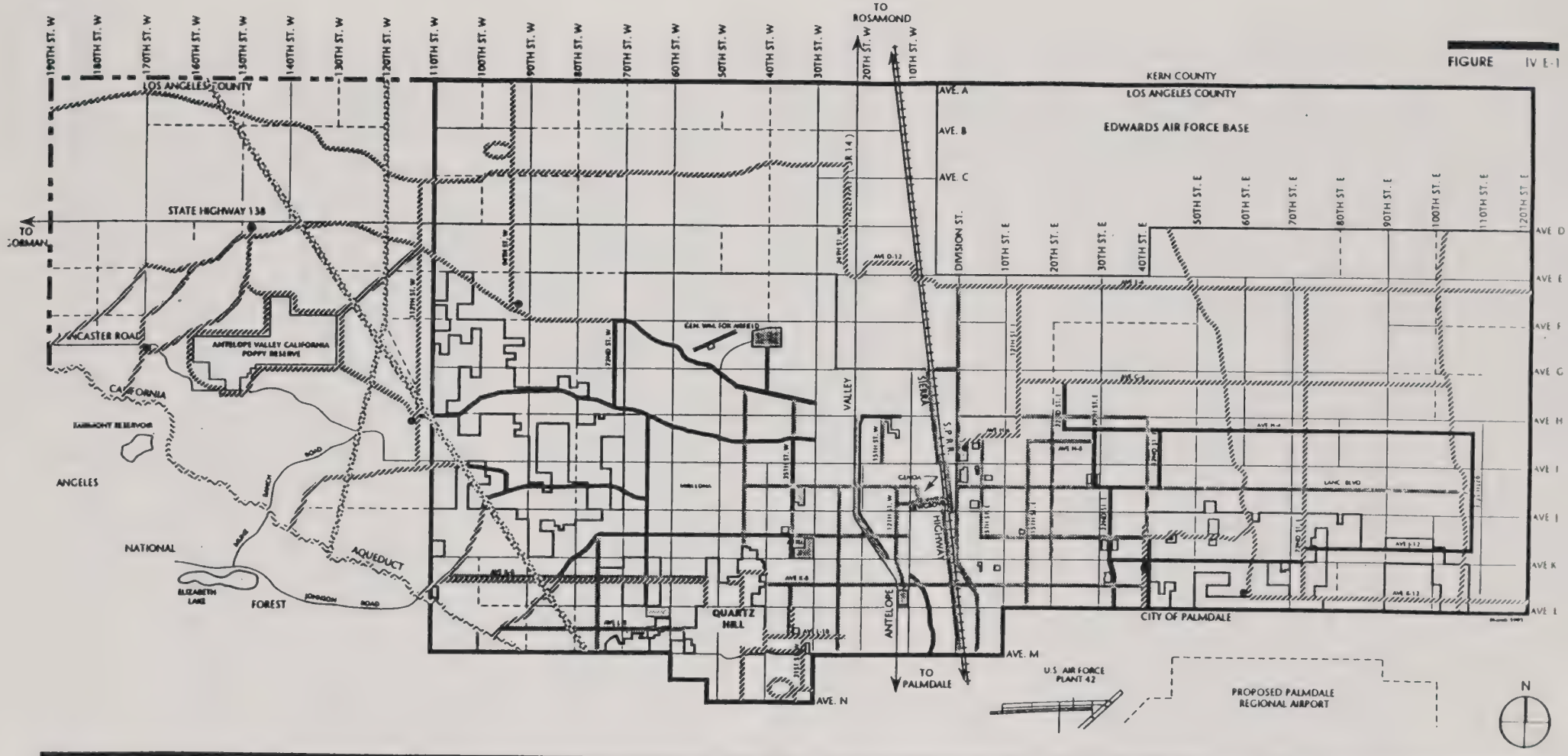
- *Class I* is a completely separated right-of-way designated exclusively for bicycles. Through traffic, whether by motor vehicles or by pedestrians, is not allowed. Cross flows by vehicles and pedestrians are allowed, but are minimized.

- *Class II* is a restricted right-of-way designated exclusively or semi-exclusively for bicycles. Through traffic by motor vehicles or pedestrians is not allowed. Cross flows by vehicles and pedestrians are allowed, but are minimized.

- *Class III* is any shared right-of-way designated by signs or stencils. It designates any pathway that shares its through traffic right-of-way with either moving (but not parked) motor vehicles or pedestrians.

There are several viable locations for the proposed trails network. These include abandoned railroad rights-of-way, electric and pipeline rights-of-way, dry washes, flood control dikes and levees, irrigation canal banks, and fire breaks. Abandoned railroad rights-of-way are not only easily converted to a recreational trail, but also can link the entire area. Railroads are ideal since accessways lie cleared, graded, and engineered.

FIGURE IV E-1



PLANNING NETWORK

- NORTH COUNTY TRAIL SYSTEM
- BIKEWAY WITHIN STREET RIGHT-OF-WAY
- URBAN TRAILS
- RURAL TRAILS
- POWER LINE EASEMENTS
- PARK/SCHOOL
- STAGING AREA

PROPOSED TRAIL SYSTEM

CITY OF LANCASTER
GENERAL PLAN

2. ANALYSIS

a. Adequacy of Trails to Meet Existing and Future Needs

As the population increases in Lancaster, so too will the volume of traffic on the City's roadways. This will continue to place pressure on existing bike lanes located within the street rights-of-way. During the 1980s, many of the City's bike lanes were converted to vehicular use as a means of relieving traffic congestion. This will most likely continue to be the trend in the future. Therefore, the City may want to plan future bicycle lanes/trails, as well as equestrian and pedestrian trails as easements separate from the street rights-of-way wherever possible. The City may also want to strive to use existing utility easements flood control facilities, and other systems which could provide trails outside the street rights-of-way. This system could also connect with County and City parks, schools and other recreational and scenic areas, where feasible, to provide a means of accessing those areas, thereby reducing the need to use major streets. Finally, for a comprehensive trail system to work, links must be provided to established County and State trails.

It should be understood that such a trails system would only be feasible if included as part of the City's plan for development of those areas which are currently vacant or in the early stages of urbanization.

b. Plans for a Regional Trail System

Antelope Valley Areawide General Plan The Antelope Valley Areawide General Plan, which is a component of the Los Angeles County General Plan, identifies bikeway routes and recommends them as a preliminary plan. This Antelope Valley Trails Plan constitutes a regional system for both pedestrian and equestrian use. The plan encourages, although does not specify, locations of trails between equestrian developments.

The Antelope Valley Areawide Plan (Los Angeles County) proposes pedestrian and equestrian trails along several major roads into the City, including Avenue J (west of 40th Street East), Sierra Highway, 60th Street West (south of Avenue I), and Avenue G. However, since these are planned major arterials, they may not be suitable for trail location. One of the major proposed County trails, called the North County Equestrian Trail, runs along the northern edge of the California Aqueduct. A proposed branch of this trail would extend northward along 60th Street West, at which point the City trails could be connected. This trail is now established for biking use only.

Antelope Valley Trails Council Master Plan of Trails The Antelope Valley Trails Council has formulated a comprehensive Master Plan of Trails for equestrian, pedestrian, and bicycling use. The portion of the proposed trail system within the City's sphere of influence is shown in Figure IV-E-1. Within the Lancaster area, the Master Plan proposes a series of multi-use trails, some for cyclists and equestrians and some for pedestrians and cyclists. The trail system would link, to the greatest extent feasible, City and County parks and schools, as well as scenic and open space areas. The portion of the Master Plan within the City would link to other portions of the trails system which would extend into the City of Palmdale and the County of Los Angeles.

As part of a more comprehensive network, the Master Plan trail systems would tie into the North County and Pacific Crest Trail Systems. The link to the Pacific Crest Trail would provide access to a 2,068-mile trail that follows the mountain ridges from Canada to the Mexican border.

Within the City of Lancaster and its sphere, the Master Plan proposes a system of trails which would utilize existing trail segments, utility easements, existing and proposed drainage and flood control facilities, street rights-of-way in urban areas, and separate easements specifically dedicated for trail purposes as part of new development proposals in undeveloped or urbanizing areas.

Some of the facilities that would be accessed by the trail system are as follows:

- Antelope Valley College
- California Poppy Preserve
- Fairmont Buttes/Antelope Buttes
- Little Buttes
- Quartz Hill
- Little Rock Wash
- California Aqueduct
- Numerous City and County parks and schools.

The Master Plan of Trails includes the following types of trail systems:

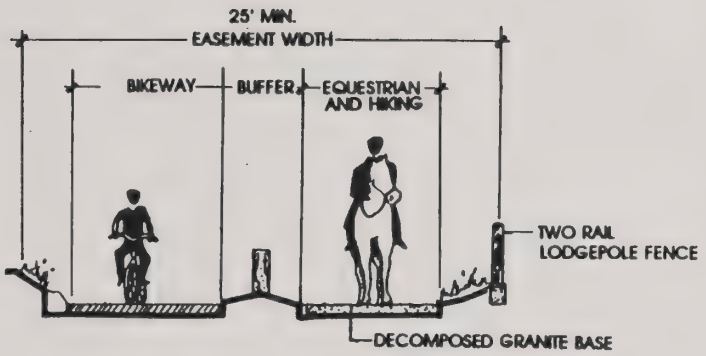
- *Urban Trails:* multi-purpose pedestrian/bicycle trails which connect residential areas to regional and community parks, schools, and commercial and industrial employment areas (see Figure IV-E-2).
- *Rural Trails:* multi-purpose equestrian/pedestrian/bicycle trails which connect residential areas to regional and community parks, schools, and commercial and industrial employment areas (see Figure IV-E-2).
- *Bike Right-Of-Way:* integrates with the urban and rural trails and provides additional access to recreational, educational, and commercial/industrial employment areas.

Within areas designated for future urban development, the system would primarily be composed of urban trails for bike/pedestrian use or bike lanes in the rights-of-way. Urban trails would transition to rural trails in less urbanized areas of Lancaster. Wherever possible, the system would connect directly with schools and parks to provide pedestrian/bike or equestrian/bike access.

The City would obtain easements for trails through dedications, which would be required from each development proposal. Developers would also be required to develop and integrate trails as a part of proposed projects.

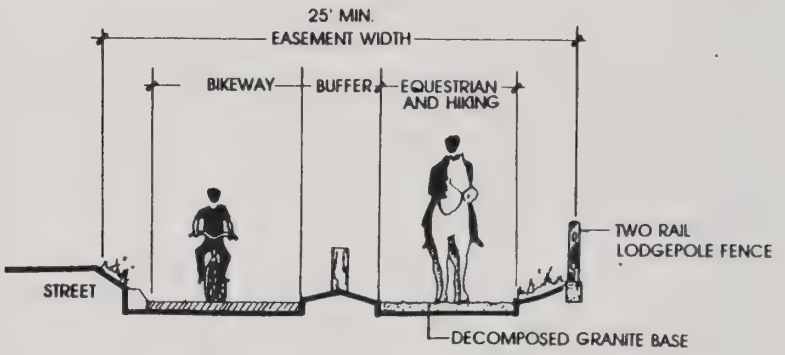
The City, in establishing trails, would be responsible for restriping of roadways; developing parking and storage facilities; utilizing public rights-of-way and park facilities to the greatest extent feasible; utilizing shared access along existing utility, drainage, and private property easements; and acquiring land for easements. It will also be necessary for the City to develop, as part of the trails implementation program, methods for trail maintenance. This might take the form of a trails maintenance district, adopt-a-trail program, or a combination of several methods for maintaining the trails system once it is implemented.

FIGURE IV-E-2



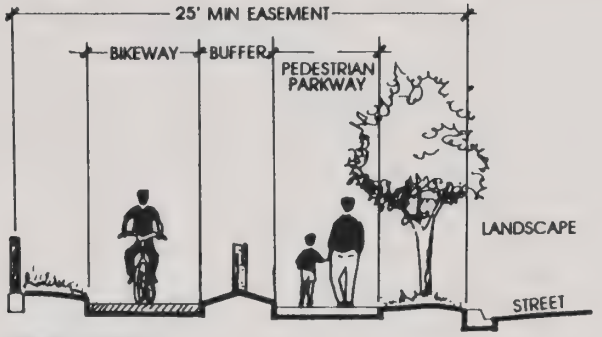
RURAL TRAILS

EQUESTRIAN/BIKE



RURAL TRAILS ADJACENT TO STREET

EQUESTRIAN/BIKE



URBAN TRAIL

PEDESTRIAN/BIKE

PROPOSED TRAIL SYSTEM CROSS SECTIONS

PLANNING NETWORK

SOURCE: Planning Network, Antelope Valley Trails Committee, 1990.

CITY OF LANCASTER
GENERAL PLAN

An integrated trails system must recognize the different needs of urban and rural residents. An important aspect of the rural lifestyle in Lancaster is the provision of equestrian trails. It is advisable to locate equestrian trails along quarter mile local streets, utility and drainage easements, and channels in rural areas, and avoid establishing this type of trail on primary or secondary roadways. A trails system must also recognize the inherent conflicts between different trail users. Equestrian and pedestrian users can be accommodated on the same trail, but bicyclists are generally located on separate paved trails.

F. HISTORICAL AND CULTURAL RESOURCES

1. EXISTING SETTING

a. Prehistory

The majority of native Americans in the Antelope Valley were of two groups known as "Kitanemuk," and "Tataviam," depending on the language they spoke. Both languages appear to be dialects of the "Shoshone" language family. There are apparently no Indian groups or people today that have descended from the Native Americans of the Antelope Valley.

Little is known about the settlement and early residents of the Antelope Valley, except for artifacts of their economy. The Valley is believed to have been a trade route for obsidian and other natural resources. As a result, the area was a desirable location for early inhabitants. State Highway 14 appears to follow trade routes that have existed for several thousand years.

The Antelope Valley's location between the coastal and inland native cultures contributed to extensive trade migration. Scientists have concluded that the Antelope Valley Indians were relatively wealthy, based on their beads and elaborate ceremonies. This wealth is attributed to their function as middlemen in trading relations between other Indian groups.

b. Archaeological Resources

Archaeological sites refer to locations of at least 45 years of age that contain at least three associated artifacts or a single feature. Over 250 archaeological sites have been discovered in the Antelope Valley, and numerous sparse lithic scatters and remains have also been found. The sites that have been discovered and investigated within the study area suggest that this region was extensively settled. Sites have been dated at 2000 to 2500 years, and recently, a new date of 5,000 years ago was established from a site near Palmdale (Project Director, Pyramid Archaeology, 1990).

Archaeological sites in this desert/foothill region are most often located near sources of water, which was necessary for the subsistence of a community. Sites have typically been found near intermittent streams, although some sites have been found in the middle of agricultural fields, distinctly separated from the nearest water source. Significant archaeological sites are generally located along the major historical watercourses and in the foothills to the southwest. They have been identified along the Amargosa and Anaverde Creeks and ridges to the south and west of the study area.

Surveillance was another important factor in the location of early villages. Consequently, many sites are located on or near high points. For example, midden areas (dark organic earth formed by centuries of Indian occupation), kitchen middens, and cooking sites, which usually represent permanent Indian occupation or village life, have been identified along the eastern base of Fairmont Butte.

Preliminary research in the area of the proposed California Springs development has found 18 cultural resource sites and 11 historical localities. These include findings on the Antelope Valley's prehistoric past, as well as the historic period of the late Nineteenth Century, during which the earliest farming communities in the Western Antelope Valley were formed.

c. Local History

In 1876, the City of Lancaster was founded and named by the Southern Pacific Railroad Company, which laid its track through this area. The Southern Pacific Railroad also built the first houses in Lancaster for the employees working on the tracks. The transcontinental railroad connected San Diego and Los Angeles, and led to a land boom for all of Southern California, including the Antelope Valley. Occurring along with this land boom was the wet cycle which helped the Antelope Valley blossom into an agricultural region. Lancaster became the center for the development of agricultural activities in the Antelope Valley by 1884. Agricultural promotion by state and federal legislation, through such means as the Wright Irrigation Act of 1887, gave rural areas the means to finance the development of irrigation systems. As a result, a group of farmers could gain access to a water supply and agricultural colonies. The following irrigation districts were established between 1890 and 1895: Neenach, Manzana, Amargosa, Palmdale, Little Rock Creek, and Big Rock Creek.

Prosperity did not last. With the dry cycle of the 1890's came failed crops and abandoned farms. It was not until the early 1900's that modern agricultural practices were employed. Farmers began to realize the limitations of their soils, and thus relied heavily on irrigation by pumping groundwater. This pattern of agriculture continued until the 1950's, with alfalfa as the primary regional crop. Gasoline pumps, electricity, and electric pumps contributed the national shift of agriculture to the west, including the Antelope Valley. Lancaster became a major farm trade center again and, by 1940, had a population of 4,500 residents.

In 1933, Rogers Dry Lake, a vast open area to the north, was selected as a military aircraft testing center. Originally known as Muroc, Edwards Air Force Base brought new visitors, employees, and residents to Lancaster. During World War II, the base was a testing ground for military aircraft, such as the P-38 lightning fighter, the B-24 Liberator, and the B-25 Mitchell bombers. As a result, Lancaster more than doubled its population to 10,500 during the 1940's, due to an influx of highly skilled technical workers.

After World War II, the Cold War with the Soviet Union and the Korean War led to more government military expenditures. Activity at Edwards continued to grow. In 1952, Palmdale Airport was sold to the Federal Government and became Plant 42, another military testing center, geared specifically for jet interceptor production and testing. These events, as well as the development of a Lockheed Corporation manufacturing facility and the baby boom of the 1950's, increased employment opportunities, housing, and services in Lancaster. Lancaster's economy had evolved during this period to the point that it was no longer dependent on agriculture, but on the aerospace industry. Then in 1958, a severe recession hit the Antelope Valley, brought on by major cuts in military aircraft production as a result of the Soviet launch of the satellite "Sputnik." In a nation where "cold war" was a household term, Sputnik generated a national wave of fear which prompted the Federal Government to reallocate much of its money from conventional aircraft to missile and space flight research. The shift away from aircratt production had no significant effect on the Southern California economy as a whole, since the region already held a significant share of the new aerospace industry. For the Antelope Valley, however, isolated from the Los Angeles metropolitan area and heavily dependent on aircraft production, it meant disaster. The valley's aircraft companies drastically reduced their work force. Figures vary, but in the span of a few weeks, Plant 42 cut its work force from some 7,000 workers to less than 2,000.

The effect of the layoffs was widespread, but particularly acute in the communities of Palmdale and Lancaster, where thousands of families were forced to abandon homes, while tracts of newly built homes went unsold.
Builders, materials suppliers, merchants, utility companies and many other businesses were all badly hurt, while banks and saving and loan associations refused to arrange loans on Antelope Valley property. For the first time, residents of the Antelope Valley were experiencing the shortcomings of reliance on a single industry based economy.

By 1964, the Antelope Valley had basically recovered from the recession. The Antelope Valley Freeway, which, when completed, formed the valley's most vital link to Los Angeles, was, at this time, in the first phase of construction, and plans to route the California Aqueduct through the valley where being considered. The aerospace industry was also beginning to recoup some of its pre-recession vitality. Northrop had been awarded a new contract to build a military jet trainer, and employment at Plant 42 also increased as a result of new contracts awarded to Boeing for the construction and testing of a new experimental bomber, the XB-70. By mid decade, the aerospace work force had climbed to 15,000, with 10,000 at Edwards Air Force Base and 5,000 at the Plant 42 facilities, and the population of Lancaster now exceeded 31,000 persons.

In 1968, two events occurred which marked the beginning of a new period of growth in the Antelope Valley. First Lockheed announced its decision to build a $30 million dollar aircraft plant near Plant 42 as the major location in California for the assembly of the new L-1011 commercial airliner. Second, the Los Angeles Department of Airports announced plans for an international airport on property adjacent to Plant 42. In addition to the Lockheed L-1011 program, Rockwell won a contract to build four XB-1 long range strategic bombers at the Plant 42 installations. Moreover, plans were under way to use Edwards Air Force Base as an operations center for the future fleet of space shuttles.

As a result of growth in the aerospace industry in the late 1960s, the Antelope Valley entered the new decade in good economic health. The Antelope Valley Freeway link between the valley and Los Angeles was completed, and work on the Antelope Valley section of the California Aqueduct was underway. Production of Lockheed's L-1011 airliner was in full swing, as was assembly of Rockwell's B-1 prototypes. Palmdale International Airport continued to create excitement, but this soon tapered off as plans for its construction became entangled in a sea of red tape and political opposition.

By the mid-1970s however, events once again took a downward turn. Following the Vietnam war, the aerospace industry entered a period of economic relapse as the Federal Government switched spending priorities from defense to social programs. Much more serious for the Antelope Valley though, was the curtailment of L-1011 production. The cutback in this program might not have affected the valley so seriously if the planned production of the B-1 could have been brought to fruition, but in 1976, the newly elected Carter Administration, acting on a campaign promise, canceled the B-1 program, which resulted in the layoff of some 4,000 Southern California Rockwell employees, many located at the Palmdale Plant 42 assembly installation. Seventeen years after the first aerospace recession, the Antelope Valley was in another economic tumble, from which it would not fully recover until after the turn of the decade. But, by then, an entirely new growth element was introduced into the valley economy.

During the 1980s, the Antelope Valley, particularly the cities of Palmdale and Lancaster, underwent a tremendous period of population growth and urban expansion. The reasons for this growth were primarily twofold: First, a resurgence in the aerospace industry as a result of increased defense spending by the Reagan Administration stimulated all sectors of the valley economy and was a replay of more historic growth trends; second was the expansion of the single family detached tract home market in response to the development of the affordable housing crisis of the 1970s. This created new affordable housing opportunities in areas like the Antelope Valley for a vast number of first-time home buyers who were virtually priced out of the Los Angeles metropolitan market by rapid housing price increases. Housing priced as much as 40 to 50 percent below the Los Angles metropolitan area induced thousands of young first time home buyers to move to the Antelope Valley. This affordable housing migration began in the early part of the decade, and did not show signs of slowing until the end of the 1980s. As a result of this boom, Lancaster's population nearly doubled during the decade going from 48,027 in 1980 to 88,732 by 1990[1].

Following closely behind the boom in residential growth was a dramatic increase in commercial facilities to serve the new residents. The 1980s witnessed the construction of several large commercial centers in both the cities of Palmdale and Lancaster, as well as the beginning of construction of the first mall and large scale auto centers in the Antelope Valley.

While residential and commercial construction accelerated during the 1980s, new industrial development remained relatively dormant. Aside from the growth in commercial and retail service employment sectors, the main employment base of the Antelope Valley has remained rooted in the aerospace industry. This means that there is a lack of diversity of professional positions within the Antelope Valley to meet the needs of the growing population. Since a large portion of the new valley residents are not connected to the aerospace industry, they continue to work in the San Fernando Valley and Los Angeles metropolitan areas.

d. Historical/Architectural Resources

Although the City of Lancaster was founded in 1876, many historical structures within the City have been destroyed over the years by fire. While some older structures are still standing, only the Western Hotel is registered as a historical landmark by the California Historical Landmarks Advisory Committee and the State Director of Parks and Recreation, (see Figure IV-F-1).

Lancaster's Western Hotel is the oldest building standing in the Antelope Valley. According to early records, the hotel was first built in the late 1800's as a house. George Webber purchased the hotel in 1908 and renamed it the Western Hotel. Between 1905 and 1913, during an unusual amount of growth, there was not enough room to house the influx of miners working at the Tropico gold mine in Rosamond and builders of the Owens River-Los Angeles Aqueduct. A tent city was built beside the hotel to handle the overflow. On many days Nebber's wife, Myrtle, and her staff housed and fed as many as 250 workmen. In 1917, the Western Hotel was the first building to have electric lights. Webber ran the hotel with Myrtle until his death in 1934. Myrtle continue to operate the hotel until the

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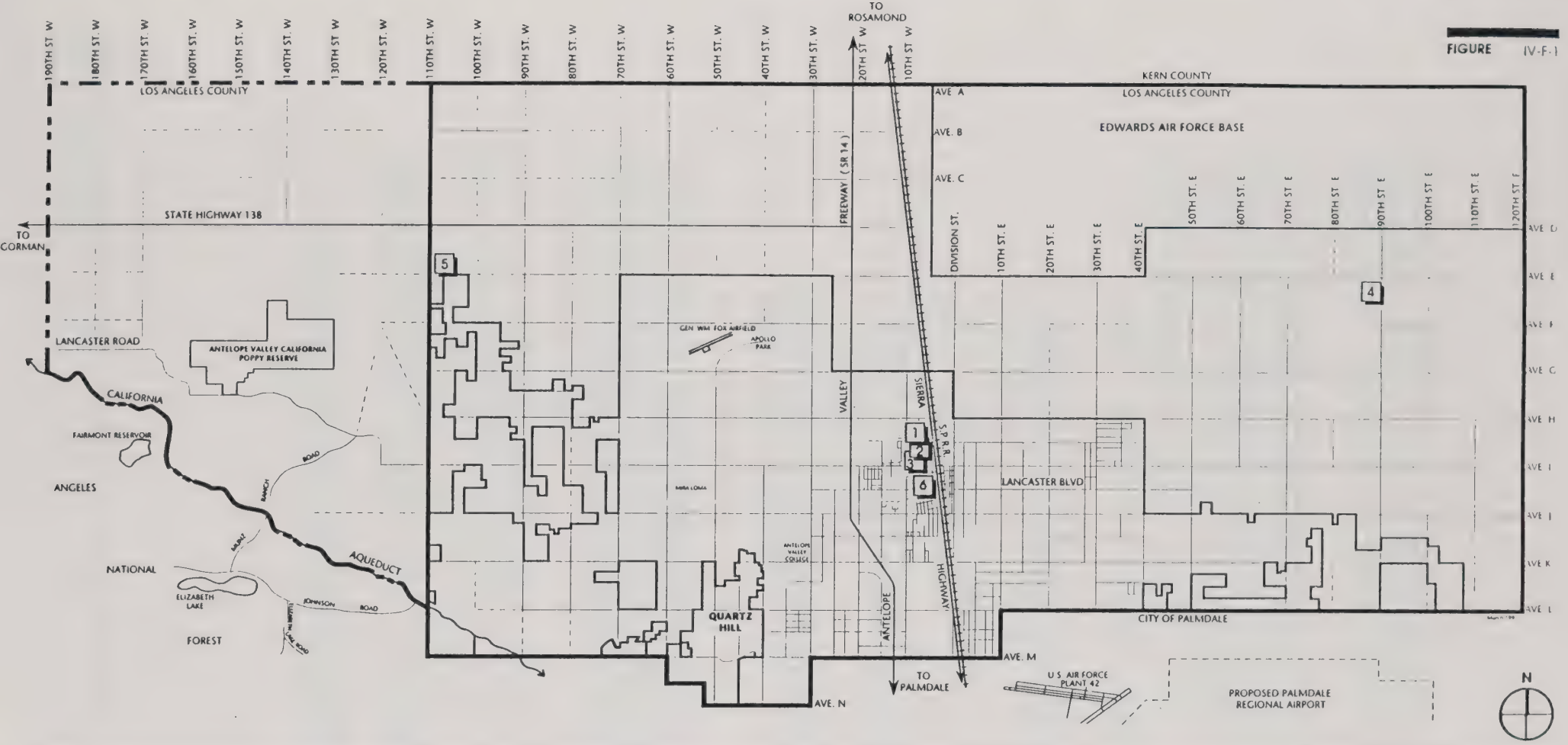
[1] According to the Bureau of Census, the population of Lancaster actually did double, reaching 97,291 persons by 1990, which represents 102.6 percent growth for the decade.

FIGURE IV-F-1



PLANNING NETWORK

HISTORICAL SITES

CITY OF LANCASTER
GENERAL PLAN

EXISTING HISTORICAL SITE
1. Western Hotel

POTENTIAL HISTORICAL SITES
2. Home of Judy Garland
3. First Bank of Lancaster
4. Old Redman Schoolhouse
5. The Bell Ranch
6. Old Cedar Avenue Elementary School

SOURCE: Glen Settle, 1990.

late 1960's or early 1970's. The poor condition of the hotel led to its condemnation by the state in 1974, and fire destroyed part of the hotel in 1975. The Western Hotel Historical Society was formed and designated, it as a California historical landmark. Restoration was achieved with Lancaster Redevelopment Agency funds.

The Hotel grounds will be landscaped in typical 19th century style, while different rooms of the Hotel are decorated in period themes. The Hotel contains information on the City of Lancaster's development, as well as those people who were instrumental in its growth and development. The Western Hotel is currently maintained by the City Parks, Recreation, and Arts Department.

Additional historical resources in the City include:

- Home of Judy Garland, located at Cedar and Newgrove Streets, built in the 1920's.
- The first bank of Lancaster, built shortly after the turn of the century at the southwest corner of Lancaster Boulevard and Sierra Highway.
- The old schoolhouse, built at the corner of 90th Street East and Avenue F during the 1920's.
- Bell Ranch, located west of 110th Street West on the north side of Avenue E-8, which was once the home of a movie producer and the site of many movies.
- The old Cedar Avenue Elementary School (Lancaster School District Office), where Marion Morrisey, later known as John Wayne, briefly attended school.

e. Civic Organizations

The Antelope Valley Archaeological Society is a local volunteer group which is active in visiting and recording archaeological sites in the Antelope Valley. The society organizes field trips which are open to the public, and is interested in expanding public awareness of the cultural resources of the community. The Society also has an environmental review committee that reviews Draft Environmental Impact Reports.

The Friends of the Antelope Valley Indian Museum is a support group for the Indian Museum. The members give tours of the museum, sponsor events, and collect information to enhance the museum exhibits.

The West Antelope Valley Historical Society is interested in preserving and publishing the local history of the Antelope Valley. Society members often give lectures and tours of the Western Hotel.

The Kern-Antelope Historical Society is also interested in preserving the history of the Antelope Valley. The Society has published several books on the prehistory, pioneers, and development of the Antelope Valley.

2. ANALYSIS

The Antelope Valley, and Lancaster in particular, has a rich historical past, although there are few remaining physical reminders of that past. This heritage is recognized as an important community resource by the residents of Lancaster. It is, therefore, valuable to protect and preserve local archaeological, historical, and architectural resources because, once lost, they cannot be replaced.

Archaeological sites are extremely fragile, and are often threatened by exposure to damage, not only by vandals, but also from curious sightseers. The City presently maintains data on previously discovered archaeological sites and resources within its boundaries. As the City expands and new developments are built, it will be important to emphasize collecting information in the foothill areas southwest of the City, along principal watercourses, and at the major topographic features within the study area.

The requirement to conduct archaeological investigations prior to development will likely continue due to CEQA regulations. Since some archaeological sites have been found located at significant distances from typical resource areas (e.g. water, hills, etc.), all properties proposed for development should be investigated to some degree to preclude possible impacts to cultural resources.

Extensive archaeological sites have been found in the area of the proposed California Springs development, particularly in the butte area. Areas at the base of the buttes were attractive sites for Indians due to the flat terrain and close proximity to both streams for water and mountains for hunting.

Before development begins for California Springs, more investigation will be required to evaluate the significance of each site that was found during preliminary research. For sites labeled unimportant according to CEQA criteria, no further work is required; for those sites labeled important, some form of mitigation will be required.

Discretionary projects, such as general plan amendments, parcel maps, zone changes, conditional use permits, etc. are subject to archaeological investigation as required by the California Environmental Quality Act (CEQA). The impacts of development on archaeological resources will be evaluated in accordance with CEQA guidelines. In addition, methods to reduce such impacts should also be addressed, and are outlined in CEQA, Appendix K.

a. Historical/Architectural Resources

Lancaster has already lost potential historic landmarks to fire and new development. Although the Lancaster Redevelopment Agency has been responsible for such projects as the expansion of City Hall, the Lancaster Museum/Art Gallery, construction of the Performing Arts Center, and continued revitalization of downtown Lancaster, the Agency has not been involved in the rehabilitation or revitalization of historically or architecturally significant buildings.

Many of the older buildings that are still standing could create visual images and attractive physical features for the study area. This could be done by restoring older structures and incorporating them into an historic district or historic street architecture themes. A map of local historical buildings could also be provided. The City might also wish to encourage the construction of buildings that match or represent historical Lancaster structures.

Lancaster has many residents and organizations who are very knowledgeable on the history of Lancaster and its study area. The City may wish to encourage local historical groups to pursue investigations of historic buildings, possible in conjunction with seismic safety analysis of public buildings. If enough resources are present, for example, in the downtown area, some type of historical district or zone could be designated to help protect these resources.

G. CULTURAL FACILITIES

1. EXISTING SETTING

a. Museums/Art Gallery

The *Lancaster Museum/Art Gallery* has been open since July, 1986. Owned and operated by the Lancaster Parks, Recreation and Arts Department, the Museum rotates historical, as well as art exhibits, of international artists. The museum does not have a permanent exhibit, but rotates 8 to 10 displays per year. The museum also sponsors three annual exhibits: the Annual Juried All-Media Art Exhibit; the Antelope Valley Union High School District Art Exhibit; and the Wildflower Information Center. The museum/art gallery is presently preparing workshops and programs for high school students.

Western Hotel Historical Museum has been open since November, 1989. The museum is located in the Western Hotel, CIRCA 1884, which was restored with Lancaster Redevelopment Agency funds. Rooms in the Museum are decorated in different period themes, while others serve as permanent displays of Antelope Valley History and Indian History. Landscaping and other exterior upgrades are to be completed in 1990-1991. The facility is open for public viewing and used for special events and programs for elementary age children. The City is working cooperatively with various school districts to implement the program.

The Antelope Valley Indian Museum, located between 150th and 170th Streets East on Avenue M, just east of the Lancaster General Plan study area, is a Swedish chalet-style house, built in 1928, by Howard Ardin Edwards, a self-taught artist, Mr. Edwards was interested in Native American culture, and collected many artifacts and painted murals, on the interior and exterior walls of the home. In 1938, the building was purchased by Grace Oliver and opened as a museum. In 1978, the State of California bought the museum, and now maintains the exhibits representing Great Basin Indians and California Indians.

This regional museum is operated by volunteers; only one hired employee is assigned to it. The museum is open Tuesday through Thursday for group tours, mostly to elementary school children, and open to the public on weekends during limited hours. The *City Hall Art Gallery* was established in 1989. Located as the name suggests, in City Hall, the purpose of the gallery is to promote the work of Antelope Valley artists. With this intent, the City Hall Art Gallery displays six exhibits per year. The City, the Allied Arts Association, and Museum/Gallery Associates serve as joint curators. The gallery is open weekdays from 8:00 am to 5:00 pm.

The *"Milestones of Flight" Museum, Inc.*, owned by Los Angeles County, is operated by the Milestones of Flight Museum Association and the Antelope Valley Community College. The College will use the museum for its aviation and piloting program. It will contain artifacts pertaining to the history of flight, with an emphasis on contributions by women. Another building will be constructed adjacent to the property to hold aircraft.

College Art Gallery, located on the Antelope Valley Community College campus, is supported by the College through its support group, the "Friends of the Gallery." The College Art Gallery provides an educational and art center for the local community by hosting art shows for local and other artists.

Lancaster Performing Arts Center. The Lancaster Performing Arts Center, located on Lancaster Boulevard between Fig and Fern, is currently under construction. This is the site of the previous Antelope Walk-In Theater and Bowling Alley. It is scheduled to open in November, 1991. It will consist of a main theater with 750 seats, and a flexible performing space known as a black box. The Center will be administered by an art superintendent who will recruit and schedule activities and performances from across the nation.

The facilities at the Performing Arts Center are expected to be used regularly by the Antelope Valley Symphony and local community theater groups. Other prospective users include the Antelope Valley College, local dance studios, the Antelope Valley Community Concerts Association, and guest lecturers.

County Administrative Center (Cedar Avenue Buildings). This is the site of the old Los Angeles County Administrative Center, which was built in the late 1920's, and is located at Cedar Avenue and Lancaster Boulevard. It has been proposed that the buildings be rehabilitated into a Cultural Arts Center with an historical museum/gallery and a community hall to hold art classes, meetings, and dances. The City currently uses one building for storage and rents office space to local nonprofit groups.

Crother Art Gallery Crother's Fine Art Gallery is located in the original Lancaster Fire Station, one of the older buildings in the City of Lancaster, at the corner of Lancaster Boulevard and Cedar Avenue. It is privately owned, and has been in operation for twenty years. The Gallery presents local artists and displays exhibits of paintings, potteries, and sculptures (see Figure IV-G-1).

b. Library Facilities

Lancaster Library, the larger of the two libraries serving the Lancaster area, is located at 1150 West Avenue J, near Kingtree Street. This branch of the Los Angeles County Public Library system was constructed in 1964 and occupies 18,700 square feet. It contains approximately 15,000 volumes, over 100 video cassettes, and 1,854 audio recordings for its 39,334 registered borrowers.

The Lancaster Library hosts several civic groups, including a Friends Group, an adult group which meets bi-monthly for poetry readings and guest speeches. The library holds four children's story times for different age groups, as well as movies, guest performers, and handicrafts. Lancaster Library also operates a Bookmobile, and children's librarians visit schools and speak to teachers and students about library services. The Lancaster Library has a meeting room which is open to the public, as well as a public use microcomputer.

The Lancaster Library has plans to expand the facility to three times its present size, to 62,000 square feet. The finances are presently being arranged, and construction could begin within two years.

The Quartz Hill Library is located at 42018 60th Street West. Its hours of operation are Monday, 12pm to 9pm, Tuesday, 10am to 9pm, Wednesday and Friday, 10am to 5pm, and Saturday, 1pm to 6pm. The Quartz Hill Library is also a branch of the Los Angeles County Library System, and was the first system to computerize its holdings into an On-Line system. The library leases this 3,750 square foot facility, and has a meeting room with a capacity of 100 people. The library contains over 8,000 books, has 6,230 registered borrowers, and circulated 79,029 of its volumes during 1988-1989.

The Quartz Hill Library has a Language Learning Center and an adult literacy training center which was established in 1983. Although it used to be a full program, with all materials (550 titles and training materials) provided by the County, lack of staffing has decreased the services of the center. The Library also holds weekly story hours for toddlers, preschoolers, as well as organizing monthly children's programs and films. A Summer Reading Program which encourages children to continue reading during the summertime.

The Older American Special Information Services (OASIS) is a Bookmobile for senior citizens and handicapped citizens, operated by the Los Angeles County Library System. OASIS is headquartered in Lancaster, and serves surrounding communities as well. It runs a regular two-week route from which they circulate books, periodicals, videos, music cassettes and large print books and "Talking Books," which are books on tape from the Braille Institute, for the visually impaired as well. OASIS also visits many convalescent homes and retirement centers to show movies, including weekly visits to the Antelope Valley Senior Center.

The North County Regional Office for the Los Angeles County Public Library is also located in Lancaster. This administrative office is not open to the public, but is the location of the bookmobile and Books-By-Mail work area. Two of the three bookmobiles serve the rural areas of Antelope Valley. The Books-By-Mail service provides books to people in the Lancaster community via the mail service.

c. Cultural Arts Organizations

The Antelope Valley Allied Artists is a non-profit organization that plans field trips, workshops, and hosts art demonstrations and lectures by special guests. It also donates money to the Antelope Valley College Art Gallery, Antelope Valley Indian Museum, Antelope Valley Arts Council, and other similar organizations.

The Antelope Valley Arts Council consists of several hundred members, including representatives from both visual and performing arts groups, and these groups represent the entire Antelope Valley and their organizations, and coordinate the Councils interface with all fine arts and performing arts associations in the Antelope Valley. In addition, the group provides scholarships for local performance artists.

The Lancaster Museum/Art Gallery Associates is a support group for the Museum/Art Gallery and Western Hotel. The Museum/Art Gallery Associates also holds fundraisers and volunteer work for the two facilities. Funds go toward purchasing items in support of the City Hall Gallery and Western Hotel.

The Lancaster Performing Arts Center Foundation is a fundraising support group for the Performing Arts Center. They will be providing amenities for the theater and sponsoring an endowment fund to finance special performances.

2. ANALYSIS

Lancaster appears to have an adequate number of facilities and organizations that focus on cultural resources and the history of the community. In terms of library facilities, Table IV-G-1 shows that the number of books at the Quartz Hill and Lancaster libraries appears adequate to serve the community, based on California Library Association Standards. On the other hand, the libraries do not meet the minimum suggested standard of 0.55 square feet of building per capita. When Lancaster Library expands its building to 62,000 square feet, the square feet per capita values for the City (0.72) and study area (0.68) will exceed CLA standards.

As the Lancaster community continues to grow, library facilities will have to grow to serve the community. The major concern in the development of library services is sufficient funding of the services.

Table IV-G-2 projects the future needs of the Lancaster study area, based on the projected population figure. By the year 2010, libraries in the Lancaster study area will need a total of 633,366 books and 174,176 square feet of building area. Consequently, the study area will need to acquire 456,670 more books and 151,726 square feet of additional building area. The ALA standards have not been changed since the 1960's, leaving each community to plan its library facilities according to its individual needs.

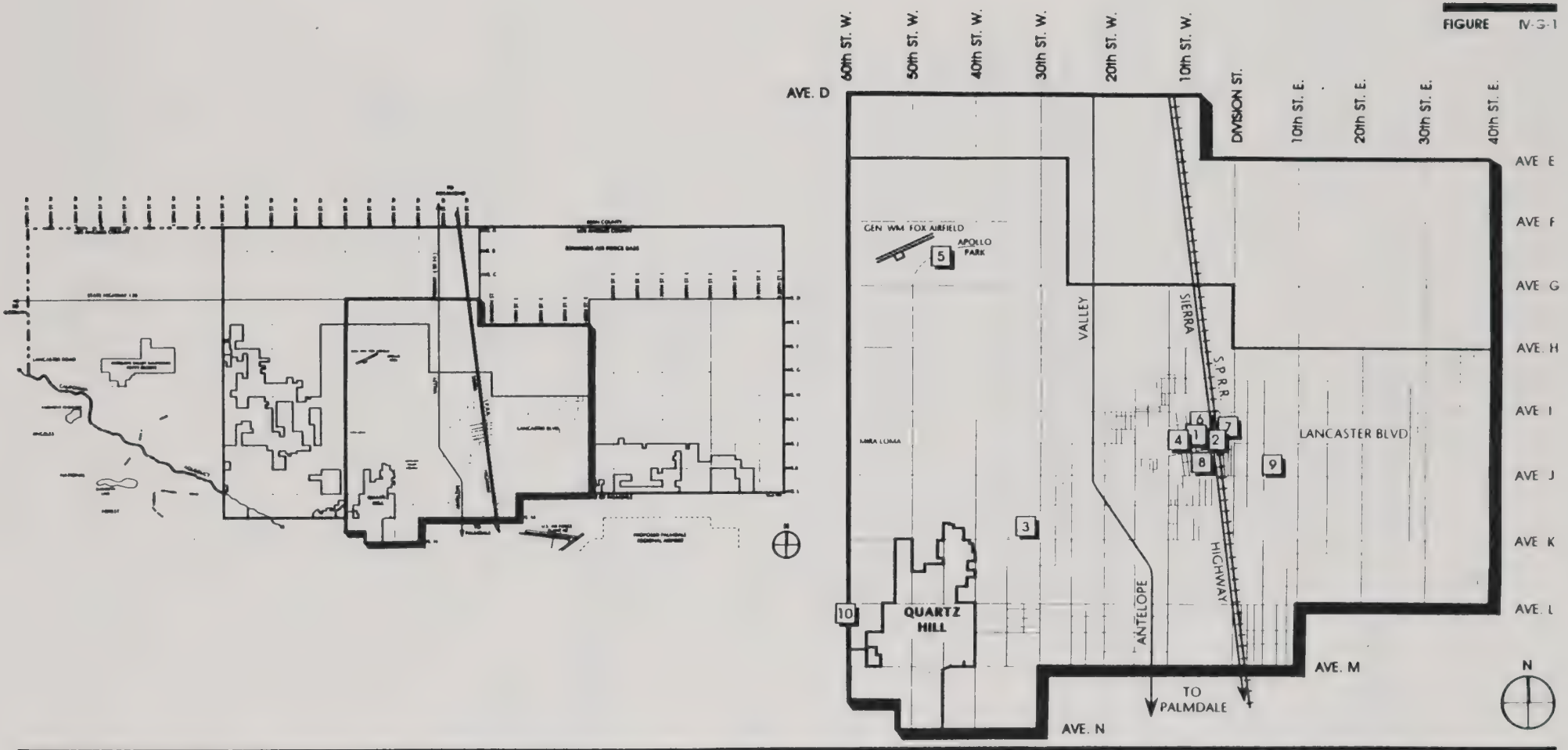
The Los Angeles County Public Library System is concerned about the number, size and location of needed library facilities in the Lancaster area, as well as acquisition of sites, construction of the facilities, and their financing. They are also concerned with providing quality library service and "having a tax base sufficient to fund this service."

As the City expands outward, it will be important to decentralize cultural facilities and libraries in the area. This will allow the entire community the opportunity to visit libraries, museums, and cultural centers. The fact that the proposed California Springs development will be located approximately fifteen miles west of the concentration of regional cultural facilities may make it difficult for residents of California Springs to utilize these resources.

To assure that there will be adequate local library facilities and services, the City may wish to consider coordinating a regional library assessment district with the County, or study the incorporation of additional library facilities into an area-wide community facilities district.

As the area grows, additional cultural groups and facilities, such as churches, civic clubs, and service organizations, will be needed, especially in the eastern and western portions of the study area. Along with City and County programs, it is anticipated that these groups and facilities will be added to provide adequate social services to local residents and develop outreach programs at existing facilities.

FIGURE IV-G-1



CULTURAL FACILITIES

PLANNING NETWORK

CITY OF LANCASTER
GENERAL PLAN

MUSEUMS AND ART GALLERIES
1. Western Hotel Museum
2. City of Lancaster Museum/Art Gallery
3. College Art Gallery
4. Lancaster Performing Arts Center
5. "Milestones of Flight" Museum, Inc.
6. County Administrative Center
7. Crother Art Gallery

LIBRARY FACILITIES
9. Lancaster Library
10. Quartz Hill Library

SOURCE: Planning Network, 1990.

Table IV-G-1
Existing Library Facilities

	Book Volumes	Building Area (sq.ft)
Lancaster Public Library	168,601	18,700
Quartz Hill Library	8,095	3,750
TOTAL	176,696	22,450
CLA Standard[1]	2 books/capita	0.55 sq.ft./capita
City[2]	1.90 books/capita	0.21[4] sq.ft./capita
Study Area[3]	1.55 books/capita	0.20[4] sq.ft./capita

1 Suggested per capita standards are set by the California Library Association, which are based on the American Library Association figures.

2 Based on the 1990 population of 88,732 for the City of Lancaster, taken from Department of Finance.

3 Based on the projected 1990 population for the entire Lancaster Study Area, taken from SCAG data and Department of Finance.

4 Lancaster Public Library will expand to 62,000 square feet, thus changing the total building area to 65,750 square feet and square foot/capita ratios to 0.74 for the City and 0.58 for the study area.

Table IV-G-2
Library Facilities - Projected Needs (2010)

	Projected Population [1]	Recomm.Books/ Capita	Recomm. Area/ Capita [2]
City of Lancaster	234,228	468,456	128,826
Antelope Valley Study Area	295,868	591,736	162,728

1 Figures from SCAG

2 Based on the CLA standard of 2 books/capita and 0.55 sq.ft. per capita, Dechiara, Joseph and Lee Koppelman, Urban Planning and Design Criteria, 3rd. ed. 1982, p. 391.

H. SOCIAL SERVICES

1. EXISTING SETTING

A variety of social programs are provided to residents of the Antelope Valley by federal, state, county, and local agencies. These agencies provide intervention, medical, support, and recovery programs for adults, children and seniors (see Figure IV-H-1).

a. General Adult Services

Department of Public and Social Services (DPSS) The Lancaster District office of the DPSS is located at the corner of Avenue K-6 and Division. It is the largest DPSS district in the County, and provides assistance to the entire Antelope Valley, east to the San Bernardino Line, north to Kern County, and northwest to Ventura County. The services provided by this district include:

- Aid to Families with Dependent Children (AFDC) provides financial assistance and other services to families and children with one or both parents who are either absent, incapacitated, unemployed, or deceased.
- Food Stamps are issued to promote the health and well-being of low-income households by raising their nutrition levels.
- General Relief is temporary financial assistance for those who are not eligible for Federal or State assistance programs, as well as for those who are in temporary need. This program also provides assistance for refugees that have been in the United States for more than 18 months, but less than 25 months. All General Relief funds issued must be reimbursed to the County.
- Medi-Cal provides comprehensive medical care benefits to public assistance recipients and those who are unable to meet medical care costs.
- The Lancaster District also provides in-home services, which are provided for the elderly, blind and disabled individuals as an alternative to institutionalization or other out-of-home care. Services include domestic services and transportation services.

b. Children's Services

Several public and private agencies provide the Lancaster community with the following children's services: day care for children of low to moderate income families, infant development services (such as occupational therapy, speech therapy, and physical therapy), parent training, and medical and dental screening.

The County's Department of Children's Services (DCS) investigates allegations of abused and neglected children. Case workers with the Department work with families, go to court, decide what resources the children and their families need, and refer them to the appropriate agencies. The Department also provides foster home placement and adoption services.

The Family Connection Program, which operates through the DCS's is located at Cedar Street and Lancaster Boulevard. This program offers in-house parenting training, parent support groups, sexual abuse prevention, counseling, and other services. In the future, this agency plans to start a foster home program.

In April, 1990, the DCS is scheduled to open the Children's Center of Antelope Valley. Funded in part by the Lancaster community, the Center will be located on Avenue M, between the cities of Lancaster and Palmdale. It will be operated by Parents United, which is part of the Department of Children's Services. This non-profit organization will provide treatment to parents and children of sexually abused families. In the future, it plans to provide more individual and group therapy, and will offer medical facilities, as well as treatment for young offenders and children who have been sexually abused. The Children's Center will complement Parents United, which provides group therapy for parents and children of sexually abused families.

Through its Fine Arts Department, the Antelope Valley Community College provides parenting classes, foster parent training, and independent living training for children with no families who are preparing to live on their own.
Local churches have set up peer counseling with schools, and the Antelope Valley Community College may soon set up a peer counseling service.

Youth Services Youth services are available from several agencies in the Lancaster study area and include counseling, parent support, child care, teen programs, family planning and counseling, sexual abuse programs for developmentally and mentally disabled school children, alcohol and drug abuse programs, teen pregnancy program, and a 24-hour Sexual Assault Response Service (SARS).

Family Services The following family services are also provided to the Lancaster area by a variety of public and private organizations: pregnancy counseling center, marriage counseling, family counseling, domestic violence programs, substance abuse programs, employment training, emergency food and lodging, grief and bereavement therapy, and adoption services.

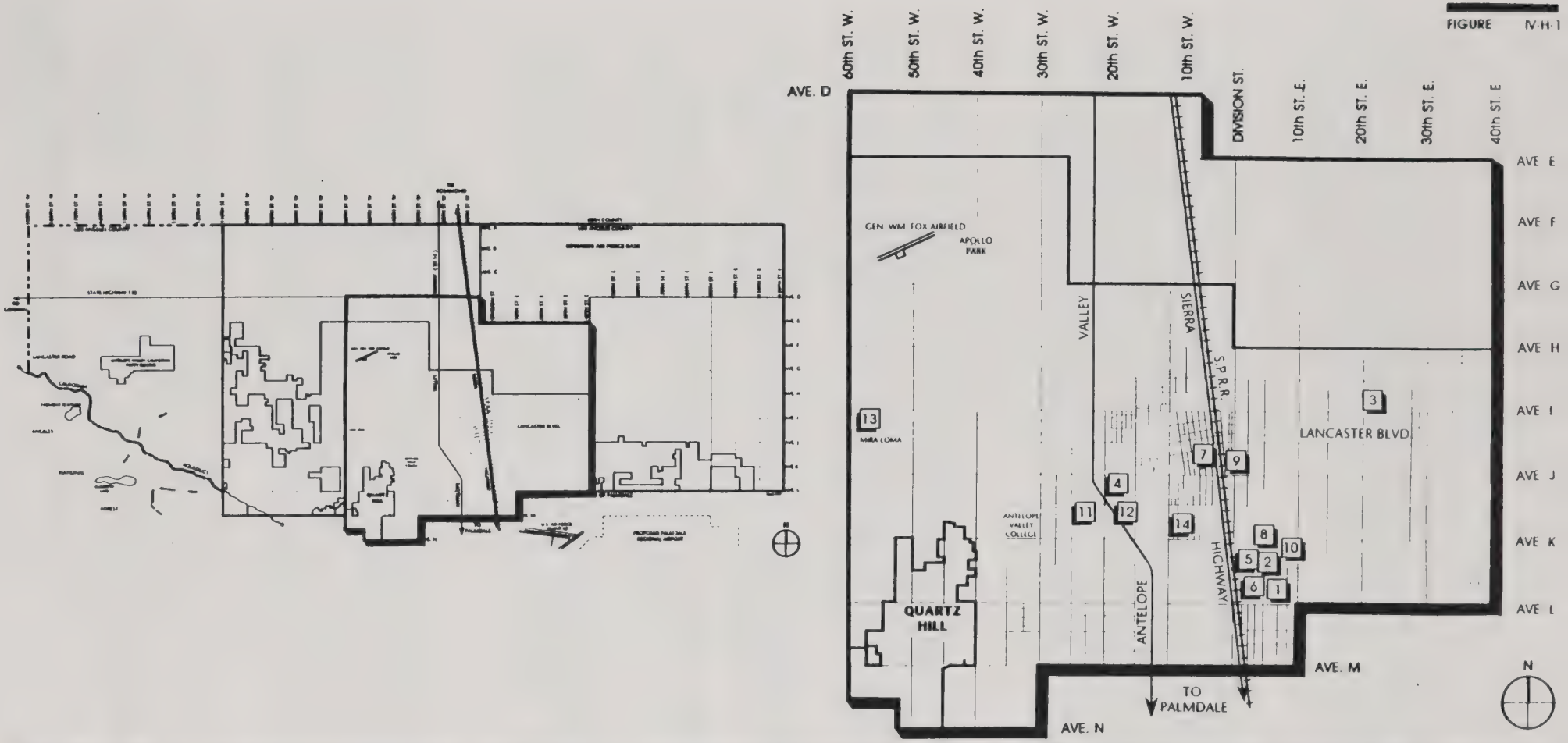
c. Senior Services

Antelope Valley Senior Center The Antelope Valley Senior Center serves as a central point for senior services and activities in the Lancaster community. Among the services provided, either by or through the Center, are health services, nutrition services, legal assistance, and social work. The Senior Center is used by the senior residents throughout the Valley. It is operated jointly by the Los Angeles County, Department of Community and Senior Citizens Services, and the Antelope Valley Committee on Aging, Nutrition, and Transportation. The Senior Center also provides congregate meals and home delivered meals to approximately 250 to 300 people. The Committee is located at North Division Street and Avenue K-4, and also provides congregate meals (in three locations), home delivered meals, and transportation for seniors and disabled persons.

d. Health Services

Although the City has a variety of specialized medical facilities and services available to the public, there are three major local hospitals: the Lancaster Community Hospital, the Antelope Valley Hospital Medical Center, and High Desert Hospital. All facilities provide comprehensive medical service including a 24-hour emergency room, extensive cardiac services, a complete pharmacy, nuclear medicine, physical therapy, radiology, and complete X-ray facilities. A variety of medical services are also available through a number of specialized facilities, including several convalescent care hospitals.

FIGURE IV-H-1



SOCIAL SERVICES AND HOSPITALS

PLANNING NETWORK

SOCIAL SERVICE FACILITIES

1. Antelope Valley Mental Health Clinic
2. Antelope Valley Senior Center
3. Assoc. for Retarded Citizens (ARC) Extended Day Center
4. California State Department of Rehabilitation
5. Los Angeles County Department of Children's Services (DCS)
6. Department of Public Social Services
7. Family Connection Program
8. Independent Living Center
9. Lancaster Community Shelter
10. North Los Angeles County Regional Center
11. YMCA

HOSPITALS

12. Antelope Valley Hospital
13. High Desert Hospital
14. Lancaster Community Hospital

SOURCE: Planning Network, 1990.

CITY OF LANCASTER
GENERAL PLAN

A master plan has been approved by the Board of Supervisors of the High Desert Hospital to construct a hospital on a 40 acre county-owned parcel at the northwest corner of 35th Street West and Avenue H. The new hospital is planned to be built in six to seven years, by 1997, and is to alleviate pressures of obstetrical care put on the community and local hospitals, particularly Antelope Valley Hospital Medical Center.

e. Mental Health Services

The Antelope Valley Mental Health Clinic (AVMHC), located at East Avenue K-6 and Division Street, provides a wide range of psychological, counseling, and psychiatric services for area residents. It also has outpatient counseling for the chronically ill. This facility only serves adults who are current Los Angeles County residents. The Clinic is also used as an activity center for the Mental Health Association to assist the patients with a variety of self-help techniques. Recently, services available at the AVMHC have been reduced due to recent budget cuts. Consequently, it is becoming more limited in the range of services it provides. It should be noted that this is the only public mental health clinic in the City.

f. Disabled Services

The Antelope Valley Community Advisory Committee provides parent support, a special education resource directory, and advice to local schools. The Association for Retarded Citizens for Antelope Valley provides work adjustment services, evaluation, job placement, vocational training, behavior training, and counseling. The Association for Retarded Citizens Extended Day Center provides a program for developmentally disabled school children.

The California State Department of Rehabilitation, located at 20th Street West and Avenue J, provides vocational counseling and evaluation for appropriate work, vocational training, and employment placement for rehabilitating patients.

The Independent Living Center provides information and referral services, housing assistance, advocacy/client assistance program, independent living skills, equipment loan, deaf services, and transportation services at fee cost.

The North Los Angeles County Regional Center (NLACRC) serves developmentally disabled persons of the San Fernando, Santa Clarita, and Antelope Valley regions. The Antelope Valley Office, located in Lancaster, provides intake and assessment, as well as ongoing case management. As of October, 1989, the Lancaster office was serving 756 clients.

g. Shelters

The Red Book Directory for Youth, Family, and Adult Services, published by the United Way, is a comprehensive guide of human services and resources in the Antelope Valley. According to the Directory, the Antelope Valley Domestic Violence Council provides counseling services, adult education, job training assistance, food, shelter for battered spouses, clothing assistance, outreach groups, welfare assistance, and legal consultation. However, there are only two shelters available to Lancaster: the Shelter for Abused Women and Children and the Lancaster Community Shelter.

The Shelter for Abused Women and Children is a non-profit organization funded by the United Way. It is the only shelter for abused women and children in the Antelope Valley and the largest such shelter in California. It consists of five two-bedroom houses and can house a total of 60 women and children. It is the only shelter that will take boys over age 12. Food and transportation are provided for the families, as well as job placement resources and continuing education.

The Lancaster Community Shelter for the homeless, located at Yucca Avenue and Nicobar Street, has been in operation since November, 1989. The shelter provides short term emergency, as well as transitional housing. It is owned by the Lancaster Redevelopment Agency and operated by Catholic Charities, a non-profit, non-sectarian service organization. The Lancaster Community Shelter consists of a 9100 square foot building with 40 beds, including two family units, a kitchen, central dining area, living quarters for a manager, and men's and women's dormitories. The Shelter also provides food, clothing, basic health care, counseling, job skills development and searches, as well as permanent housing searches.

h. Other

Hotlines/Helplines There are a variety of hotlines available to area residents for Aids, Alanon, (alcoholics anonymous), Teen Pregnancy Counseling, Child Abuse, Cocaine Anonymous, Council on Substance Abuse Awareness, Domestic Violence, Elder Abuse, Marijuana Anonymous, Narcotics Anonymous, Sexual Assault Response Service (SARS), Agency Council for Emergency Services (for emergency food, shelter, or other emergency services), Listen and Learn (which provides information and confidential answers on the topics of drugs, alcohol, AIDS, etc.; also available in Spanish), and National Runaway, which provides help for runaways. A gang watch hotline also operates to help stem the growing gang population of Lancaster.

YMCA The local YMCA, located at 2340 W, Ave., J-8 in Lancaster, provides child care, health and fitness, and teen, family and sports programs. Child care is provided to all of Lancaster School District. In this program, children are picked up from their schools and brought to the child care sites. Day camps, resident camps, and junior caravans have also been organized at the YMCA. A committee has been established by the YMCA to produce a five year long range plan, which includes developing a swimming pool and much needed child care facilities.

Parent Program The Cities of Lancaster and Palmdale jointly sponsor a parenting education program targeted at parents of teens in trouble or on the verge of getting into drugs/alcohol abuse or gangs. A paid coordinator recruits and trains volunteer instructors. Parents go through a 7-week, 3-hours per week program, designed to assist them in dealing with their teens.

2. ANALYSIS

The Antelope Valley Interagency Council (AVIC) consists of all the local social service agencies. The Council provides local agencies with demographic information and identifies major social service problems in the Valley. The Council has discovered that the major problems facing Antelope Valley include:

- Its geographic isolation from extensive social services and sites in Los Angeles;
- A rapid change in ethnic demographics has led to an increase in non-English populations which require social services, but the community cannot meet the requirements at the same pace of growth;

- Many problems relating to "commuteritis", or the effects of daily commuting in and out of the Los Angeles area. For example, domestic violence, alcoholism, drug dependency, and child abuse have been linked to stress from long commuting distances. Antelope Valley also has a high child abuse rate. The AVIC reports that local emergency rooms and child abuse treatment centers have identified the stress of commuting as a major cause of child and domestic abuse.

Based on other discussions with local social service providers, the City of Lancaster may lack comprehensive social programs for young children, as well as teenaged youths. This may also include recreational program deficiencies. For example, there are presently few boys and girls clubs, or activities for junior high school students. Other than the Kleiner Center, there are few places in the City for children to socialize, participate in recreational activities, and be safely supervised.

There are also no local safe houses for runaways, and many children from this area have gone as far as Santa Monica and Orange County. The study area may consider adding such additional facilities, including homeless shelters and transitional housing facilities to accommodate further shelter needs as the total population of the study area continues to grow. In addition, there is a lack of publicly operated drug substance abuse/rehabilitation programs and psychiatric services for adults or youths.

As the City grows, additional medical and other social programs and facilities will be needed to maintain adequate local service. These will need to be distributed appropriately to provide the most effective service to area residents. Discussions with a number of local health professionals conclude that the City may need additional pediatricians and therapists that will accept foster children for treatment. In addition, services for the elderly will be in more demand in the future. The isolation of the elderly community in the proposed California Springs development, if developed, may pose problems, because this community will be almost fifteen miles west of the downtown services. There are 3,970 senior units proposed, but no senior services are apparently to be provided.

The City may wish to encourage some type of regional or convenient recreation facility that could also provide a positive attraction for youth. Facilities such as a water recreation activities, a sports complex, an arcade/game complex, possibly in conjunction with a shopping mall, could provide a relaxed, safe, supervised place for local teenagers to socialize, and could be a primary deterrent against gang association. Small, drop-in centers offering neighborhood services will also be important for youth in the City.

The City may also wish to explore the provision of an additional local homeless shelter, either through existing public/private facilities, by initiating new programs, or encouraging other public/private organizations to fund such a program.

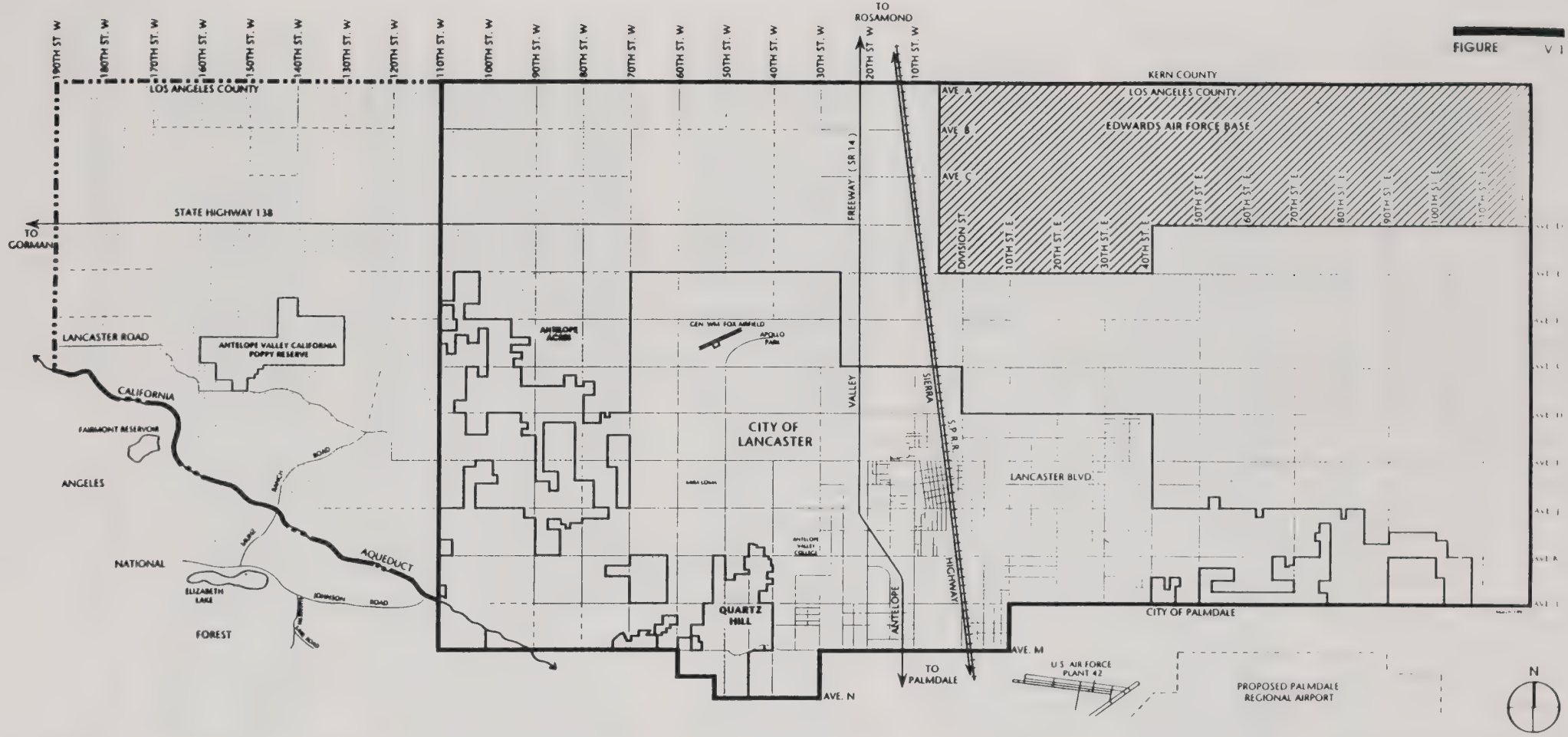
V. STATE OF THE CITY REPORT
PHYSICAL MOBILITY

V. PHYSICAL MOBILITY

INTRODUCTION

The Physical Mobility Chapter addresses how goods and people move about the Lancaster General Plan study area (see Figure V-1). This issue is one of the most pervasive issues a locality must address, as it affects land use, urban design, energy consumption, air quality, and the City's infrastructure. In this Section, transportation facilities, as well as alternative modes of transportation, are discussed.

FIGURE V I



AREA CONTEXT

PLANNING NETWORK

- CITY BOUNDARY
- INCORPORATED AREA
  As of October, 1990
- SPHERE OF INFLUENCE BOUNDARY
- EXPANDED STUDY AREA
- UNINCORPORATED
- EDWARDS AIR FORCE BASE

SOURCE: City of Lancaster Planning Department

CITY OF LANCASTER
GENERAL PLAN

A. STREETS AND HIGHWAYS

1. EXISTING SETTING

a. Classifications of Existing Circulation System and Roadway Geometrics

The City of Lancaster and its study area possess a comprehensive transportation network with significant regional and local connections. The City has six (6) major roadway classifications to describe its planned roadway network. The first two classifications designate regional facilities: expressways and regional arterials. The last four are citywide: major arterials, secondary arterials, collector and local streets. The City has existing regional arterials, additionally, a proposed regional arterial extension is also being considered. Figure V-A-1 presents the existing roadway network and functional classification system within the sphere of influence and also the alignment for the proposed regional arterial extension.

Regional Facilities The City of Lancaster is about 45 miles north of downtown Los Angeles, but about 75 miles from Los Angeles via the Antelope Valley Freeway, State Route 14 (SR-14). SR-14 runs north to Kern County and, eventually, transitions to State Highway 395 north of Inyokern. Highway 58 branches from SR-14 at Mojave, passes through the Tehachapi Mountains, and extending northwest to Bakersfield, where it merges with State Highway 99. SR-14, therefore, provides an important regional north-south transportation link to, and, from the Antelope Valley.

Several arterials in the City of Lancaster and its sphere of influence serve regional functions, as well as local needs. Avenue D (State Route 138) extends west from SR-14, and connects with the Golden State Freeway (I-5) near the Ventura County border, and extends east from the City of Palmdale, connecting with I-15. Avenue I becomes Lancaster Road at 110th Street West, then proceeds northwest and intersects Avenue D at 250th Street West. Sierra Highway links Lancaster with the Community of Rosamond to the north in Kern County and the City of Palmdale to the south. Avenue J also extends from Sierra Highway to the east and west.

Local Facilities Generally, the existing roadway system is designed, in a grid pattern, with major and secondary arterials spaced at one mile and one-half mile intervals, respectively. The DKS Associates report entitled, "Citywide Circulation Study, Technical Memorandum No. 2," identifies several roadways within the City which are designated as major arterials. Major arterials are proposed to be spaced at approximately one-mile intervals, and represent the major carrying capacity for traffic within and beyond the City. Current design standards for a major arterial are paved sections of 84 feet within a 100-foot right-of-way. When built to its full carrying capacity, this will provide for either three lanes of through traffic in each direction and a median for left-turning traffic, or two lanes in each direction, a left-turn median lane, and a curb lane for parking and possible bicycle routes. In some portions of the City, the median is paved to create specific left-and U-turn bays; in other locations, painted medians with optional/dual left-turn lanes are used.

Some of the major arterials within Lancaster and its sphere of influence are discontinuous because construction is incomplete, and many are not built to the full 84-foot paved cross-section along the entire length. The following section describes those road sections which are defined as major arterials. Segments of the described roadways may also be defined as secondary arterials, which have a lesser carrying capacity. This is especially true in the areas of recent annexations, since under the Los Angeles County Master Plan of Highways, majors and secondaries arterials were required to be improved only to rural street standards.

Major Arterials *According* to the 1990 "Citywide Circulation Study, Technical Memorandum No. 2", several of the major arterials in the City have connecting segments which vary in the number of operating lanes. For example, Avenue I is predominantly a two-lane street; however, the street increases to four lanes between SR-14 to 40th Street East. Other major arterials characterized by varying lane segments include Avenue J, which has two lanes, except between SR-14 and 15th Street East, where there are four lanes; Avenue K is, generally, a two-lane street, but increases to six lanes from 30th Street West to Division Street; 30th Street West is also a two-lane street, except from Avenue K to Avenue K-8, where it has four lanes; 20th Street West increases from two to four lanes between Lancaster Boulevard and Avenue L; 10th Street West has four lanes between Avenue H and Avenue K-8. The following further describes each of the planned major arterials found in the study area.

- *Avenue A* extends from west of 120th Street West to Sierra Highway, and has two through lanes over its entire length.

- *Avenue B* is only partially constructed, extending from 120th Street West to Sierra Highway. It is currently paved between 110th and 90th Street West and between 30th Street West and Sierra Highway. It has two through lanes.

- *Avenue C* is a discontinuous, two-lane arterial. It reaches from 110th Street West to Sierra Highway, and is currently paved between 30th Street West and Sierra Highway.

- *Avenue D (State Route 138)* extends from Sierra Highway on the east to an interchange with the Golden State Freeway (I-5) near the Los Angeles County/Ventura County border. This street has two through lanes.

- *Avenue E* exists as a two-lane roadway from 120th Street West to east of 120th Street East. It is discontinuous west of 30th Street West, and is currently paved between 80th and 90th Street West and east of 30th Street West.

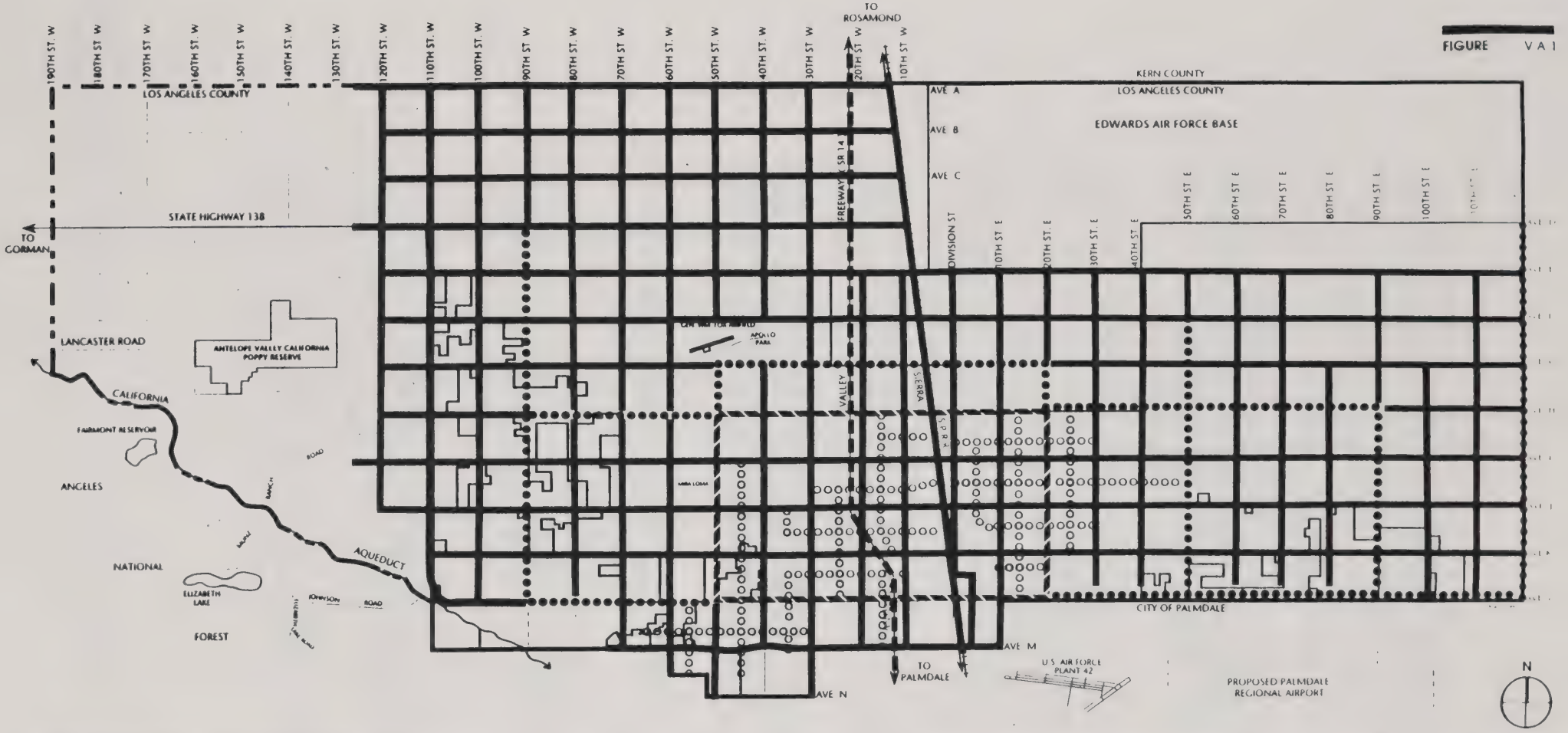
- *Avenue F* is discontinuous along its length, and extends from 120th Street West to 90th Street East. It is currently paved between 90th Street West and Sierra Highway and between 50th and 90th Street East. It has two through lanes.

  Avenue G extends from 120th Street West to 120th Street East, and is paved between 110th Street West and 90th Street East. This street has two through lanes.

- *Avenue H* is discontinuous along its length, and extends from 120th Street West to east of 120th Street East. It is currently paved between 90th Street West and Sierra Highway and from Division Street to the east. Avenue H has two through lanes, and is the northern arterial considered for the regional access.

- *Avenue I* extends from 120th Street East to 110th Street West, where it becomes Lancaster Road. It then extends northwest and intersects Avenue D at 250th Street West. It has two through lanes over much of its length, except for the segment between the Antelope Valley Freeway SR-14 and 40th Street East, which has four to six lanes.

FIGURE V A 1



ROADWAY CLASSIFICATION

PLANNING NETWORK

- Freeway
- Expressway/Regional Arterial (Existing)
- Major Arterial
- Secondary Arterial
- Proposed Regional Arterials

NOTE: All 1/2 Mile Roads Throughout the City are Secondary Arterials.

SOURCE: DKS Technical Memorandum No. 2

CITY OF LANCASTER
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- *Avenue J* reaches from 110th Street West to 170th Street East. This street is currently classified by the County as a major arterial east of 60th Street West, and is classified as a minor arterial to the west. It has two through lanes over much of its length, except for the segment between the Antelope Valley Freeway (State Route 14) and 15th Street East which has four to six lanes. There is a raised median along the Antelope Valley Freeway overcrossing.

- *Avenue K* reaches from 110th Street West to east of 120th Street East. This street is currently classified by the County as a major arterial west of 90th Street East and as a minor arterial to the east. It has two through lanes over much of this length, except for the segment between 30th Street West and Division Street, which has four to six lanes and a raised median.

- *Avenue L* is a discontinuous street that extends from 90th Street West to east of 120th Street East. It is classified by the County as a minor arterial west of 90th Street West and east of 90th Street East, and is classified as a regional arterial between 80th Street West, and 90th Street East. This street is currently paved between 90th Street West and Sierra Highway, between Division Street and 10th Street East (Challenger Way), between 40th and 60th Street East, and from 90th Street East to the east. There are two through lanes.

- *Avenue M* extends from west of 70th Street West to 50th Street East. There is also a small segment between 80th and 100th Street East. This arterial has two through lanes.

- *110th Street West* is a two-lane arterial that extends from Avenue A to Elizabeth Lake Road. South of Avenue K, near the California Aqueduct, this roadway runs along an east-west axis. It is proposed to be classified as a regional arterial by the County from SR-118 to Elizabeth Lake Road.

- *90th Street West* extends from north of Avenue A to Avenue L, and has two through lanes, over its entire length. It is classified as a regional arterial from Avenue D to Avenue L.

- *80th Street West* is a discontinuous arterial that extends from north of Avenue A to Avenue L. It is classified as a major arterial. This roadway is currently paved north of Avenue A, between Avenue D and Avenue G, and between Avenue J and Avenue L. There are two through lanes.

- *70th Street West* reaches from Avenue B to Avenue N, and has two through lanes, along its length. It is classified by the County as a major arterial, over most of this length, except for the segment between Avenue J and Avenue L, which is classified by the County as a secondary arterial.

- *60th Street West* extends from north of Avenue A to the California Aqueduct, where it becomes Godde Hill Road. It has two through lanes.

- *50th Street West* is a two-lane roadway that reaches from Avenue G to south of Avenue N, where it becomes Quartz Hill Cutoff. It is classified as part of the existing regional arterial system from Avenue L to Avenue G.

- *40th Street West* is a two-lane roadway that extends from Avenue I to Avenue L-8.

- *30th Street West* extends from Avenue A south into the City of Palmdale. It has two through lanes, over much of its length, except for the segment between Avenue J and Avenue K-8, which has four lanes.

- *20th Street West* is a discontinuous roadway that extends from Avenue E south into the City of Palmdale. It is currently paved between Avenue E and Avenue F, and south of Avenue I. There are four through lanes between Lancaster Boulevard and Avenue L, and two lanes along the remainder.

- *10th Street West* extends from Avenue G south into the City of Palmdale. There are four through lanes between Avenue H-8 and Avenue K-8, and two lanes along the remainder.

- *Sierra Highway* extends from the community of Mojave, to the north in Kern County to the I-5/SR-14 interchange, to the south of Palmdale. Within the study area, it has two through lanes north of Avenue I, and four through lanes to the south. There is a painted median between Avenue J and Avenue K.

- *Division Street* reaches from Avenue E to north of Avenue L. It has two through lanes, over much of its length, except for the segment between Lancaster Boulevard and Avenue J, which has four lanes.

- *10th Street East (Challenger Way)* extends from Avenue E to Avenue M. It has two through lanes over much of its length, except for the segment between Lancaster Boulevard and to the south of Avenue J, which has four lanes.

- *20th Street East* is a two-lane roadway that extends from Avenue H to Avenue M. It is classified as a regional arterial from Avenue L to Avenue H, with a proposed extension of this designation to Avenue D. This street is the current eastern peripheral loop connection.

- *30th Street East* is a two-lane arterial that extends from Avenue E to south of Avenue M, providing access to Plant 42.

- *40th Street East* is a two-lane roadway that extends from Avenue G to Avenue M.

- *50th Street East* extends from Avenue E south into the City of Palmdale. It has a two through lanes, and is proposed as a regional arterial from Avenue L to Avenue E.

- *60th Street East* is a two-lane arterial that extends from Avenue E to Avenue I.

- *70th Street East* extends from Avenue E south into the City of Palmdale, and has two through lanes, along its entire length. It is classified by the County as a major arterial north of Avenue J, and as a minor arterial to the south.

- *80th Street East* is a two-lane roadway that extends from Avenue H to Avenue I.

- *90th Street East* extends from Avenue E south into the City of Palmdale. It has two through lanes along its entire length, and is proposed as a regional arterial from Avenue L to Avenue H.

- *110th Street East* is a two-lane roadway that extends from Avenue H to Avenue J.

- *120th Street East* is a two-lane roadway that extends from Avenue J north into Edwards Air Force Base. The County has proposed that this roadway be classified as a regional arterial. There is a gate near the entrance to the Air Force Base.

Secondary Arterials *Secondary* arterials are spaced at approximately one-half mile intervals, between the major arterials, and provide access to the major arterials. Current design standards, for a secondary arterial, are paved sections of 64 feet within an 80-foot right-of-way width. When built to its full carrying capacity, this cross-section provides for either two lanes in each direction, with a painted median left-turn lane, or one lane in each direction, with a painted median left-turn lane and curb parking. Typically, secondary arterials do not have a raised median.

Some of the secondary arterials, within Lancaster and its sphere of influence, are discontinuous and have yet to be built to the full 64-foot paved cross-section, along their entire length. The following describes those existing roadways, or segments of roadways, which are defined as secondary arterials:

- *Avenue H-8* is a two-lane arterial that extends from west of 15th Street West to Sierra Highway.

- *Lancaster Boulevard* extends from 30th Street West to east of 40th Street East. It has two through lanes, over much of its length, except for the segment between 20th Street West and Challenger Way, which has four lanes. There is an offset of, approximately, 850 feet at Division Street.

- *Avenue J-8* is a two-lane roadway that extends from west of 30th Street West to east of 10th Street West, and from 15th Street East to 25th Street East.

- *Avenue K-8* has two unconnected segments: from 35th Street West to 30th Street West, and from 20th Street West to 10th Street West. Both segments are striped for two through lanes.

- *Avenue L-8* extends from west of 60th Street West to 30th Street West in the City of Lancaster, and has two through lanes.

- *55th Street West* is a two-lane roadway that extends from Avenue L to Avenue M-8.

- *45th Street West* has two unconnected segments: from north of Avenue K to Avenue L-14, and from Avenue M to Avenue N. Both segments are striped for two through lanes.

- *35th Street West* is a two-lane roadway that extends from Avenue K-8 to Avenue M.

- *25th Street West* is a two-lane roadway that extends from Lancaster Boulevard to Avenue L.

- *15th Street West* has two unconnected segments: from Avenue H-8 to Avenue K, and from Avenue K-8 to Avenue L. There are four through lanes between Kettering Street and Avenue K, and two lanes along the remainder.

- *5th Street East* extends from north of Avenue I to Avenue J, and has a total of two through lanes.

Collector and Local Streets System Collector streets are 40-foot roadways in 64-foot rights-of-way; local streets are 36-foot roadways in 60-foot rights-of-way. These roadways are distributed throughout the City, between the major/secondary arterials.

Los Angeles County Antelope Valley Area Highway Plan The Los Angeles County Antelope Valley Area Highway Plan was compared to the City's functional classifications system. Several differences were found between the two plans. For example, the Antelope Valley Highway Plan defined roadways in different classifications, including major highways, and collector streets. Major highways include urban highways which are of countywide significance. These highways are the most heavily traveled routes, and, generally, require four or more lanes of moving traffic, channelized medians and, to the extent possible, access control and limits on intersecting streets. The normal right-of-way width for these highways is 100 feet, although this width may vary to meet extraordinary circumstances.

Secondary Highways include urban routes which serve or are planned to serve an areawide or countywide function, but are less heavily traveled than major highways. In addition to the countywide function, secondary highways frequently act as oversized collector roads feeding the countywide system. In this capacity, the routes serve to remove heavy traffic from local streets, especially in residential areas.

In urban areas, secondary highways normally have four moving lanes of traffic on 80 feet of right-of-way. But configuration and width may vary with traffic demand and conditions on the ground. Access control, especially to residential property and minor streets, is desirable along these roads.

Limited secondary routes are located in remote foothill, mountain and canyon areas. Their primary function is to provide access to low-density settlements, ranches, and recreational areas. The standard improvement for limited secondary routes is two traffic lanes on 64 feet of right-of-way. Typically, such improvements consist of 28-30 feet of pavement with graded shoulders. Left-turn pockets and passing lanes may be provided when required for traffic safety. The right-of-way may be increased to 80 feet for additional improvements where traffic or drainage conditions warrant.

Collector streets are established on all section lines and quarter-section lines in the Antelope Valley, except on those lines designated as highways on the Highway Plan. Collectors have a minimum of 64 feet wide cross section.

Though the County classifications are designated differently from the City, the definition of each classification is similar. Major Highways and Secondary Highways of the County correlate to the City's Major Arterial and Secondary Arterials, respectively. Each has similar right-of-way widths. The Major Highways of the County, like the Major Arterials of the City, both have 100-foot rights-of-way widths, while both County Secondary Highways and City Secondary Arterials have 80-foot rights-of-way. The City, presently, does not have an equivalent to the County's limited Secondary designation. Review of the County plan indicates that these roadways do not occur within the City's boundaries.

The City's system is characterized by Major Arterials in one-mile grids, and Secondary Arterials in half mile grids. Generally, the County's plan is similar, except for a few roadway segments. While the City's system designates these following segments as Major Arterial, the County plan designates segments of 80th Street West, 70th Street West, 40th Street West, Division Street, 30th Street East, 50th Street East, and Avenue I as Secondary Highways.

Collector Street classifications are similar for both jurisdictions.

b. Function of Roadways by Traffic Type

The proposed regional and local roadway system, within the City and its study area, includes expressways, regional arterials, major and secondary arterials, and collector and local streets. The following defines each of these roadways by function:

- *Expressways* Expressways are regional facilities with access limited to one-half to one mile intervals. They are 134-foot roadways, curb to curb, within a minimum of 150 foot rights-of-way and may have four to five through lanes in each direction.

- *Regional Arterials* Regional arterials are limited access facilities which provide service to non-local through trips with a minimal level of direct access to adjacent land uses. They are designated as 104-foot roadways, curb-to-curb, within a minimum of 120-foot right-of-way and carry four lanes of through traffic in each direction.

- *Major Arterials* Major arterials provide service to non-local through trips, as well as provide limited local access. Ideally, curb cuts are minimized on major arterials, although, historically, such access control has been difficult to achieve in many jurisdictions. In Lancaster, Major arterials are designated as 84-foot roadways, curb-to-curb, within 100-foot rights-of-way, which, when built to its full carrying capacity, provides for either three lanes for through traffic in each direction and a median for left-turning traffic, or two lanes in each direction, a left turn median lane, and a curb lane for parking.

- *Secondary Arterials* Secondary arterials provide more local access than major arterials, but also provide some non-local through traffic service. In Lancaster, they are designated as 64-foot roadways, curb-to-curb, within 80-foot rights-of-way. When

built to their full carrying capacity, secondary arterials provide either two lanes in each direction with a painted median left turn lane, or one lane in each direction with a painted median left turn lane and curb parking.

- *Collector Streets* Collector streets are intended to carry traffic between residential neighborhoods and the arterials street network. They are, generally, two-lane roadways which have a mixture of residential and commercial land uses along them. Collector streets are 40 feet, curb-to-curb, within 64-foot rights-of-way. Based upon planning criteria developed by the U.S. Department of Transportation and other agencies, average daily traffic volumes on collector streets should be held below approximately 15,000 vehicles per day in order to maintain acceptable levels of service at intersections and an environment compatible with residential land uses. Higher density residential land uses or side yards of single-family homes may be located adjacent to collector streets. Higher traffic volumes may be acceptable on certain collector streets, such as those with fronting commercial development or extra wide cross sections.

- *Local Residential Streets* Local residential streets are designed to serve adjacent residential land uses only. They allow access to residential driveways and often provide on-street parking for the neighborhood. Local streets are designated as 36-foot roadways within 60-foot rights-of-way. Cul-de-sacs are 34-foot roadways within 58-foot rights-of-way. They are not intended to serve through traffic traveling from one street to another, but solely local traffic. Traffic volumes on a residential street should not exceed about 2,500 vehicles per day and 200-300 vehicles per hour. The maximum residential traffic volume which is acceptable to persons living along a street may vary from one street to another, depending upon roadway width, type of dwelling units (i.e., high density apartment versus single-family homes), presence of schools, and other factors. The maximum volume of 2,500 vehicles is, therefore, to be used as a general guide only.

c. Capacities of Existing Circulation System

The capacity of a roadway is affected by a number of factors: including its width; the number of intersecting roadways; the amount of green time given to the street at each signal; the presence or absence of on-street parking; the number of intervening driveways, the number of lanes, and other related factors.

Actual operating conditions experienced on a street segment or at an intersection are described by the "Level of Service" (LOS). Level of Service is a qualitative measure of on-street conditions, such as traffic flow and delay. It is described on a scale of A to F, with A representing excellent operating conditions and little or no vehicle delay, while F represents extremely congested conditions and significant vehicle delay. Table V-A-1 describes Levels of Service for both roadways and intersections.

Level of Service is one component measure of a volume/capacity (V/C) ratio measurement. The volume/capacity ratio compares actual volume on a street segment or at an intersection to the theoretical maximum number vehicles that could use the street or intersection during a one hour period. For example, a

typical freeway lane can generally carry about 1,800 vehicles in an hour. If the actual volume is 1,200, then the V/C ratio for that lane is 1,200/1,800, or 0.66; approximately 66 percent of the available capacity is utilized at that location. A V/C ratio of 0.66 corresponds to a Level of Service B, which is good, and indicates that there is considerable capacity still available for use by additional traffic volume.

Table V-A-1
Level of Service

Service	Arterial Vol/Capacity	Intersection Vol/Capacity	Descriptions
A	less than 0.60	less than 0.30	Uncongested operations; all vehicles clear in a single signal cycle.
B	0.60 - 0.70	0.30 - 0.49	Uncongested operations; all vehicles clear in a single signal cycle.
C	0.70 - 0.80	0.49 - 0. 69	Light congestion; occasional backups on critical approaches.
D	0.80 - 0.90	0.69 - 0.84	Congestion on critical approaches, but intersection functional. Vehicles required to wait through more than one cycle during short peaks. No long-standing lines formed.
E	0.90 - 1.00	0.84 - 1.00	Severe congestion with some long-standing lines on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements.
F	> 1.00	> 1.00	Total breakdown with stop-and-go operation.

Source: "Highway Capacity Manual," Transportation Research Board, Special Report No. 209, Washington, DC, 1985.

Table V-A-2 presents a complete capacity analysis for all major and minor arterials in the City and its sphere of influence. The table identifies the 1989 geometrics, facility type, existing ADTs, existing capacities, volume/capacity ratios, and Level of Services, which is the most recent information available. For additional information, refer to the Citywide Circulation Study, Technical Memorandum No. 2, as prepared by DKS Associates for definitions of levels of service and the relationship of the LOS with volume/capacity ratios.

Table V-A-2
Existing Volumes on Existing Network

Existing Roadway Sections	From/To	Striping/ Geometrics	Facility Type	1989 Daily Capacity	1989 Volume	V/C	LOS
EAST - WEST ARTERIALS							
Avenue A	W. of 120th St. W/Sierra Hwy	2 Lanes	Major	16,000		0.00	NA
Avenue B	110th St. W/90th St W.	2 Lanes	Major	16,000		0.00	NA
	30th St. W/Sierra Hwy	2 Lanes	Major	16,000		0.00	NA
Avenue C	30th St W/Sierra Hwy	2 Lanes	Major	16,000		0.00	NA
Avenue D	W. of 120th St W/80th St W	2 Lanes	Major	16,000	2,800	0.18	A
	80th St W/Sierra Hwy	2 Lanes	Major	16,000	3,500	0.22	A
Avenue E	90th St W/80th St W	2 Lanes	Major	16,000		0.00	NA
	30th St W/Sierra Hwy	2 Lanes	Major	16,000	300	0.02	A
	Sierra Hwy/50th St E	2 Lanes	Major	16,000	2,700	0.17	A
	50th St E/E. of 120th St E	2 Lanes	Major	16,000	2,200	0.14	A
Avenue F	90th W/Sierra Hwy	2 Lanes	Major	16,000		0.00	NA
	50th St E/90th St E	2 Lanes	Major	16,000		0.00	NA
Avenue G	110th St W / Antelope Valley Fwy	2 Lanes	Major	16,000	400	0.03	A
	Antelope Valley Fwy/10th St W	2 Lanes	Major	16,000	400	0.03	A
	10th St W/Division St	2 Lanes	Major	16,000	2,000	0.13	A
	Division St/90th St E	2 Lanes	Major	16,000	1,000	0.06	A
Avenue H	110th St W/90th St W	--	--	--	--	--	--
	90th St W/30th St W	2 Lanes	Regional	16,000	1,000	0.06	A
	30th St W/Sierra Hwy	2 Lanes	Regional	16,000	3,000	0.19	A
	Division St/E. of 120th St E	2 Lanes	Regional	16,000	700	0.04	A
	90th St E to 120th St E	2 Lanes	Major	16,000	700	0.04	--
Avenue H-8	15th St W/Sierra Hwy	2 Lanes	Secondary	14,000	1,500	0.11	A
Avenue I	W. of 120th St W/50th St W	2 Lanes	Major	16,000	1,900	0.12	A
	50th St W/Antelope Valley Fwy	2 Lanes	Major	16,000	9,400	0.59	A
	Antelope Valley Fwy / Sierra Hwy	4 Lanes	Major	32,000	28,000	0.88	D*
	Sierra Hwy/20th St E	4 Lanes	Major	32,000	19,000	0.59	A
	20th St E/30th St E	4 Lanes	Major	32,000	11,000	0.34	A

Table V-A-2 (Continued)
Existing Volumes on Existing Network

Existing Roadway Sections	From/To	Striping/ Geometrics	Facility Type	1989 Daily Capacity	1989 Volume	V/C	LOS
	30th St E/40th St E	4 Lanes	Major	32,000	5,600	0.18	A
	40th St E/120th St E	2 Lanes	Major	16,000	4,500	0.28	A
Lancaster Boulevard	30th St W/20th St W	2 Lanes	Secondary	14,000	3,700	0.26	A
	20th St W/Division St	4 Lanes	Secondary	28,000	13,000	0.46	A
	Division St/5th St E	4 Lanes	Secondary	28,000	11,000	0.39	A
	5th St E/20th St E	2 Lanes	Secondary	14,000	3,700	0.26	A
	20th St E/50th St E	2 Lanes	Secondary	14,000	1,500	0.11	A
Avenue J	110th St W/90th St W	2 Lanes	Major	16,000	500 +	0.03	A
	90th St W/60th St W	2 Lanes	Major	14,000	1,200 +	0.09	A
	60th St W/40th St W	2 Lanes	Major	16,000	3,900	0.24	A
	40th St W/Antelope Valley Fwy	2 Lanes	Major	16,000	16,000	1.00	E*
	Antelope Valley Fwy/20th St W	4 Lanes	Div. Major	36,000	26,000	0.72	C
	20th St W/Division St	4 Lanes	Major	32,000	31,000	0.97	E
	Division St/15th St E	4 Lanes	Major	32,000	24,000	0.75	C
	15th St E/20th St E	2 Lanes	Major	16,000	11,000	0.69	B
	20th St E/120th St E	2 Lanes	Major	16,000	5,300	0.33	A
Avenue J-8	35th St W/20th St W	2 Lanes	Secondary	14,000	7,000	0.50	A
	20th St W/10th St W	2 Lanes	Secondary	14,000	12,000	0.86	D*
	10th St W/5th St W	2 Lanes	Secondary	14,000	4,700	0.34	A
Avenue K	110th St W/50th St W	2 Lanes	Major	16,000	3,400	0.21	A
	50th St W/30th St W	2 Lanes	Major	16,000	9,000	0.56	A
	30th St W/Division St	4 Lanes	Div. Major	36,000	35,000	0.97	E*
	Division St/20th St E	2 Lanes	Major	16,000	20,000	1.25	F*
	20th St E/50th St E	2 Lanes	Major	16,000	6,000	0.38	A
	50th St E/90th St E	2 Lanes	Major	16,000	2,400	0.15	A
	90th St E/E. of 120th St E	2 Lanes	Major	14,000	1,000	0.07	A
Avenue K-8	35th St W/30th St W	2 Lanes	Secondary	14,000		0.00	NA
	20th St W/10th St W	2 Lanes	Secondary	14,000	3,700	0.26	A

Table V-A-2 (Continued)
Existing Volumes on Existing Network

Existing Roadway Sections	From/To	Striping/ Geometrics	Facility Type	1989 Daily Capacity	1989 Volume	V/C	LOS
Avenue L	90th St W/70th St W	2 Lanes	Major	14,000		0.00	NA
	70th St W/40th St W	2 Lanes	Major	16,000	9,000	0.56	A
	40th St W/10th St W	2 Lanes	Regional	16,000	16,000	1.00	E*
	10th St W/Sierra Hwy	2 Lanes	Regional	16,000	8,000	0.50	A
	Division St/10th St E	2 Lanes	Regional	16,000	500	0.03	A
	40th St E/60th St E	2 Lanes	Major	14,000	150	0.01	A
	90th St E/120th St E	2 Lanes	Major	14,000		0.00	NA
Avenue L-8	65th St W/30th St W	2 Lanes	Secondary	14,000	2,200	0.16	A
Avenue M	70th St W/50th St W	2 Lanes	Major	16,000	2,300	0.14	A
	50th St W/Antelope Valley Fwy	2 Lanes	Major	16,000	9,000	0.56	A
	Antelope Valley Fwy/10th St E	2 Lanes	Major	16,000	13,000	0.81	D*
Avenue M-8	70th St W/45th St W	2 Lanes	Secondary	14,000	400	0.03	A
Avenue N	70th St W/60th St W	2 Lanes	Secondary	14,000	2,400	0.17	A
	60th St W/10th St W	2 Lanes	Major	16,000	6,000	0.38	A
NORTH - SOUTH ARTERIALS							
110th St West	Ave A/Ave L	2 Lanes	Major	16,000		0.00	NA
100th St West	N. of Avenue A	2 Lanes	Major	16,000		0.00	NA
90th St West	N. of Ave A/Ave L	2 Lanes	Regional	16,000	1,400	0.09	A
80th St West	N. of Ave A	2 Lanes	Major	16,000		0.00	NA
	Ave D/Ave G	2 Lanes	Major	16,000		0.00	NA
	Avenue J/Ave L	2 Lanes	Secondary	14,000		0.00	NA
70th St West	Ave B/Ave J	2 Lanes	Major	16,000	400	0.03	A
	Ave J/Ave L	2 Lanes	Secondary	14,000	500	0.04	A
	Ave L/Ave M-8	2 Lanes	Major	16,000	500	0.03	A
	Ave M-8/Ave N	2 Lanes	Major	14,000	500	0.04	A
60th St West	N. of Ave A/Ave I	2 Lanes	Major	16,000	1,400	0.09	A
	Ave I/Ave N	2 Lanes	Major	16,000	4,800	0.30	A
55th St West	Ave L/Ave M-8	2 Lanes	Secondary	14,000	1,400	0.10	A
50th St West	Ave G/Ave J	2 Lanes	Regional	16,000	1,800	0.11	A

Table V-A-2 (Continued)
Existing Volumes on Existing Network

Existing Roadway Sections	From/To	Striping/ Geometrics	Facility Type	1989 Daily Capacity	1989 Volume	V/C	LOS
	Ave J/Ave L	2 Lanes	Regional	16,000	6,000	0.38	A
	Ave L/Ave N	2 Lanes	Major	16,000	9,000	0.56	A
45th St West	Ave K/Ave M	2 Lanes	Secondary	14,000	1,300	0.09	A
	Ave M/Ave N	2 Lanes	Secondary	14,000	1,200	0.09	A
40th St West	Ave I/Ave L-8	2 Lanes	Major	16,000	2,300	0.14	A
35th St West	Ave K-8/Ave M	2 Lanes	Secondary	14,000	1,200	0.09	A
30th St West	Ave A/Ave H	2 Lanes	Major	16,000	350	0.02	A
	Ave H/Ave J	2 Lanes	Major	16,000	7,000	0.44	A
	Ave J/Ave K	2 Lanes	Major	16,000	13,000	0.81	D*
	Ave K/Ave K-8	4 Lanes	Major	32,000	16,000	0.50	A
	Ave K-8/Ave L	2 Lanes	Major	16,000	15,000	0.94	E*
	Ave L/Ave N	2 Lanes	Major	16,000	9,000	0.56	A
25th St West	Ave J/Lancaster Boulevard	2 Lanes	Secondary	14,000	3,200	0.23	A
20th St West	Ave E/Ave F	2 Lanes	Major	16,000		0.00	NA
	Ave I/Lancaster Boulevard	2 Lanes	Major	16,000	7,000	0.44	A
	Lancaster Blvd/Ave J	4 Lanes	Major	32,000	11,000	0.34	A
	Ave J/Ave K	4 Lanes	Major	32,000	27,000	0.84	D*
	Ave K/Ave L	4 Lanes	Major	32,000	10,000	0.31	A
	Ave L/Ave N	2 Lanes	Major	16,000	4,300	0.27	A
15th St West	Ave H-8/Ave I-4	2 Lanes	Secondary	14,000	7,000	0.50	A
	Ave I-4/Ave J	4 Lanes	Secondary	28,000	12,000	0.43	A
	Ave J/Ave J-8	4 Lanes	Secondary	28,000	16,000	0.57	A
	Ave J-8/Ave K	4 Lanes	Secondary	28,000	31,000	1.11	F*
	Ave K-8/Ave L	2 Lanes	Secondary	14,000	7,000	0.50	A
10th St West	Ave G/Ave H-8	2 Lanes	Major	16,000	900	0.06	A
	Ave H-8/Ave I	4 Lanes	Major	32,000	7,000	0.22	A
	Ave I/Ave J	4 Lanes	Major	32,000	23,000	0.72	C
	Ave J/Ave K-8	4 Lanes	Major	32,000	31,000	0.97	E*
	Ave K-8/Ave M	2 Lanes	Major	16,000	22,000	1.38	F*
	Ave M/Ave N	2 Lanes	Major	16,000	10,000	0.63	B

Table V-A-2 (Continued)
Existing Volumes on Existing Network

Existing Roadway Sections	From/To	Striping/ Geometrics	Facility Type	1989 Daily Capacity	1989 Volume	V/C	LOS
Sierra Highway	N. of Avenue A/Ave I	2 Lanes	Major	16,000	7,000	0.44	A
	Ave I/Ave J	4 Lanes	Major	32,000	22,000	0.69	B
	Ave J/Ave K	4 Lanes	Div. Major	36,000	24,000	0.67	B
	Ave K/Ave M	4 Lanes	Major	32,000	28,000	0.88	D*
Division Street	Ave E/Ave G	2 Lanes	Major	16,000	1,000	0.06	A
	Ave G/Ave H	2 Lanes	Major	16,000	4,000	0.25	A
	Ave H/Lancaster Blvd	2 Lanes	Major	16,000	9,000	0.56	A
	Lancaster Blvd/Ave J	4 Lanes	Major	32,000	12,000	0.38	A
	Ave J/N. of Ave L	2 Lanes	Major	14,000	6,000	0.43	A
5th St East	Ave H-8/Ave J	2 Lanes	Secondary	14,000	6,000	0.43	A
10th St East	Ave E/Ave H	2 Lanes	Major	16,000	1,000	0.06	A
	Ave H/Ave I	2 Lanes	Major	16,000	3,100	0.19	A
	Ave I/Lancaster Blvd	2 Lanes	Major	16,000	8,000	0.50	A
	Lancaster Blvd/Ave J	4 Lanes	Major	32,000	10,000	0.31	A
	Ave J/Ave K	2 Lanes	Major	16,000	13,000	0.81	D*
	Ave K/Ave M	2 Lanes	Major	16,000	8,000	0.50	A
20th St East	Ave H/Ave I	2 Lanes	Regional	16,000	300	0.02	A
	Ave I/Ave J	2 Lanes	Regional	16,000	4,300	0.27	A
	Ave J/Ave K	2 Lanes	Regional	16,000	7,000	0.44	A
	Ave K/Ave L	2 Lanes	Regional	16,000	2,600	0.16	A
30th St East	Ave E/Ave H	2 Lanes	Major	16,000	900	0.06	A
	Ave H/Ave L	2 Lanes	Major	16,000	2,700	0.17	A
40th St East	Ave G/Ave I	2 Lanes	Major	16,000	100	0.01	A
	Ave I/Ave L	2 Lanes	Major	16,000	700	0.04	A

Table V-A-2 (Continued)
Existing Volumes on Existing Network

Existing Roadway Sections	From/To	Striping/ Geometrics	Facility Type	1989 Daily Capacity	1989 Volume	V/C	LOS
50th St East	Ave E/Ave I	2 Lanes	Regional	16,000	800	0.05	A
	Ave I/Ave K	2 Lanes	Regional	16,000	2,500	0.16	A
	Ave K/Ave I	2 Lanes	Regional	16,000	3,600	0.23	A
60th St East	Ave E/Ave I	2 Lanes	Major	16,000	"	0.00	NA
70th St East	Ave E/Ave J	2 Lanes	Major	16,000	400	0.03	A
	Ave J/Ave L	2 Lanes	Major	14,000	200	0.01	A
80th St East	Ave H/Ave I	2 Lanes	Major	16,000		0.00	NA
90th St East	Ave E/Ave L	2 Lanes	Regional	16,000	3,900	0.24	A
110th St East	Ave H/Ave J	2 Lanes	Major	16,000		0.00	NA
120th St East	N. of Ave A/Ave J	2 Lanes	Regional	16,000		0.00	NA
ANTELOPE VALLEY FREEWAY							
	N. of Ave A/Ave D	4 Lanes		80,000	18,000	0.23	A
	Ave D/Ave F	4 Lanes		80,000	20,000	0.25	A
	Ave F/Ave H	4 Lanes		80,000	24,000	0.30	A
	Ave H/Ave I	4 Lanes		80,000	26,000	0.33	A
	Ave I/Ave J	6 Lanes		120,000	28,000	0.23	A
	Ave J/Ave L	6 Lanes		120,000	38,000	0.32	A
	Ave.L/Ave N	6 Lanes		120,000	42,000	0.35	A

"+" Estimated Volume

* Highway segments with existing LOS at D or lower

d. Regional Planned Improvements

This section identifies those major transportation facilities improvements planned for the City or its study area by the Los Angeles County Transportation Commission, the Southern California Association of Governments (SCAG), or Caltrans (see Figure V-A-2).

The Los Angeles County Transportation Commission is primarily responsible for funds management for highway-related capital improvements and transit systems. The Commission presently is not proposing any new near-term transportation improvements within the City or its study area. The Transportation Commission, however, did propose major improvements in 1987 for the Antelope Valley region, as identified in their action plan entitled "On the Road to the Year 2000." Their action plan proposed major improvements for SR-138 (along Lancaster Road, Avenue D, Palmdale Boulevard, and Pearblossom Highway, which is the SR-138 alignment east of SR-14) and SR-14. Improvements for SR-138 included widening SR-138 between SR-14 and Avenue R from four to six lanes by restriping the existing on-street parking and adding a traffic lane; widening SR-138 to add a lane in each direction from Avenue R to 57th Street; adding one-mile passing lanes from Avenue T to SR-18; and connecting passing lanes to create a continuous four-lane wide road on Palmdale Boulevard from Avenue T to SR-18.

The Southern California Association of Governments (SCAG) has developed a Regional Mobility Plan (1989) that identifies long-range (20-year) policies and actions to address Antelope Valley mobility issues. The goal of the Regional Mobility Plan is to recapture and retain the transportation mobility levels of 1984, and the Plan provides specific means to address the goal. Within the Plan are four separate elements: growth management, transportation demand management, transportation systems management, and facility development. Existing Antelope Valley State Highways were identified for various levels of improvement over the planning period. It should be noted that there are no current improvements funded in the study area under the 1988 State Transportation Improvement Program (STIP).

To address transportation issues in the Lancaster area, SCAG prepared a Palmdale/ Lancaster Area Transportation Study (1990). This document was drafted in response to the need to supplement SCAG's regional transportation model and improve local forecasting procedures in order to support the strategic transportation planning process in this area of rapid development. The conclusions and recommendations are as follows:

- The proposed State Route 138 to become parallel to Avenue D west of the Antelope Valley Freeway. It would share a common alignment with the Antelope Valley Freeway between Avenue D and Avenue P-8 and between the Antelope Valley Freeway and 50th Street East. At 50th Street East, the alignment turns south to parallel Pearblossom Highway.

- The Antelope Valley Freeway should be widened in the near term to a continuous cross-section of three lanes in each direction south of Avenue P, based on existing traffic volumes.

- Future traffic volumes indicate that the Antelope Valley Freeway should be widened in the future to four or five lanes in each direction between the Santa Clarita Valley and Kern County.

- An expressway and regional arterial network for the area should be studied.

- A true regional-bypass freeway facility will eventually be needed beyond the year 2010.

- Rights-of-way for a future northeast corridor should be preserved for future adoption.

- Even with the freeway improvements recommended above, several arterial segments within the Palmdale/Lancaster area would continue to experience congestion. Therefore, arterial improvements and the implementation of certain transportation demand management (TDM) measures should be studied.

The Antelope Valley Sketch "Master Plan" of Highways Report (1991) is a follow up to the SCAG Antelope Valley Study, initiated at the request of Caltrans to identify additional highway facilities to complement the proposed Route 138 Freeway. Although the study is a follow up to the SCAG Antelope Valley Study, it is not a formal part of that study, and will not require the approval of the SCAG Executive Committee. The final report is to be the basis of revised general plans for the cities of Palmdale and Lancaster, the County of Los Angeles Highway Plan, the SCAG Regional Mobility Plan, and the adopted freeway realignment for State Route 138.

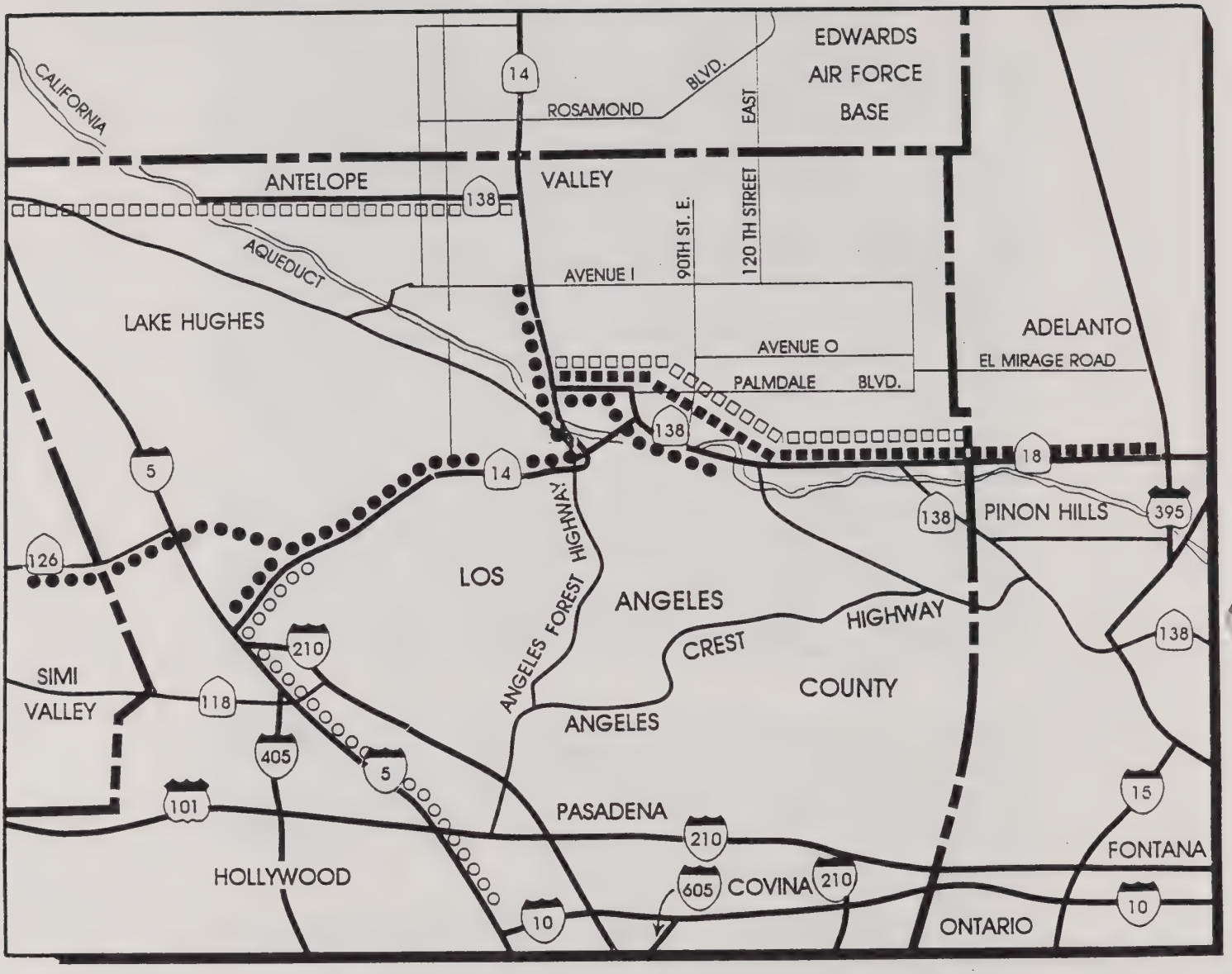
The route alignment for the proposed Route 138 Freeway, called the Metropolitan Bypass, was adopted by the California Highway Commission in 1968. Since that time, considerable development has taken place along the adopted alignment, making construction of the freeway along the alignment doubtful. A decision was made to realign a portion of the adopted freeway alignment so as to bypass developed areas in Palmdale. The committee defined a plan of arterial highways which will complement the State highways in accommodating travel demand consistent with land development, which are summarized in Table V-A-3.

The study, which focused on Route 138, developed alternatives, analyzed travel demand and its impact on the highway system, and recommended a preferred alternative for realigning Route 138. The preferred 20 year alternative, which was adopted by the Antelope Valley Study's Policy Committee on July 13, 1990, departs from the adopted alignment at Avenue D, proceeds east to Route 14, south on Route 14 to Avenue P-8, east on Avenue P-8, and turns southeast at 90th Street East to rejoin the adopted alignment.

The primary recommended freeway route will be State Route (SR) 138. The existing adopted route will be modified after analyses of appropriate alternatives. Alternatives considered by the Antelope Valley study were:

- depart from the adopted alignment westerly of I-5 and continue easterly in the Avenue D corridor to SR-14, then southerly on SR-14 to Avenue P-8 (this would require widening the freeway to 10 lanes), then easterly along Avenue P-8 to 90th Street East, then southerly in the 90th Street East corridor to rejoin the adopted alignment; and

FIGURE V-A-2



PLANNED HIGHWAY IMPROVEMENTS

PLANNING NETWORK

- Long Range (2010) Corridors Selected Freeway and Expressway
- Unconstrained Transit Development Medium Capacity on High Occupancy Vehicle (HOV) Lane
- Mixed Flow Improvements Constrained Improvements
- Mixed Flow Improvements Unconstrained New/Improved Corridors

SOURCE: SCAG RegionalMobility Plan, Figures V-3, V-8, V-16, 1990. (BURBANK EL SEGUNDO HAWTHORNE TO LANCASTER)

CITY OF LANCASTER
GENERAL PLAN

CITY of LANCASTER, CA. INCORPORATED NOV. 22, 1977

- continue easterly along the Avenue D/Avenue E corridor to approximately 90th Street East, then south along the 90th Street East corridor to the adopted route. A modified version of Alternative 2 would have developed Avenue P-8 between SR-14 and 90th Street East as well (not necessarily as a freeway, however).

It would be prudent in the next 20 years to widen SR-14 to ten lanes rather than build a six lane freeway along 90th Street East, due to the cost and resources involved. In other words, the SR-138 Freeway would run from I-5 easterly along Avenue D/Avenue E corridor to 90th Street East, south along 90th Street East corridor, and rejoin the adopted route easterly into San Bernardino County. However, Caltrans has indicated that they do not currently concur with using SR-14 as part of 138 alignment. Avenue P-8 could also be developed between SR-14 and 90th Street East to provide access to Palmdale airport, and SR-14 could be widened to eight or ten lanes later, if the need arose. Additionally, improved arterial streets, as recommended in this study, would accommodate local travel in Palmdale and Lancaster. In order to provide access to the Palmdale Airport, Avenue P-8 would have to be widened between SR-14 and 90th Street East, or at least between SR-14 and 50th Street East.

To improve access to the Antelope Valley, a project to add a lane in each direction from Shadow Pines Road, approximately 35 miles south of Lancaster on SR-14, to Avenue P-8 in Palmdale, resulting in a minimum of six lanes all the way to Lancaster, will be programmed in the 1992 State Transportation Improvement Program (STIP).

Existing low volume roads that connect to Bouquet Canyon Road and San Francisquito Canyon Road leading out of the southwestern part of the City and into the industrial center could be investigated for additional access. Planned improvements to SR-126 and SR-138 (including the freeway) will enhance access from Ventura, San Bernardino, and Kern counties.

e. Bikeways

Bikeways or lanes are defined as any facility reserved for the exclusive or semi-exclusive use of bicycles and related vehicles. The City of Lancaster has striped bicycle lanes on a few streets. Existing bike lanes are provided on Avenue L between 70th Street West and 20th Street West, on 30th Street West between Avenue L and Avenue J, on two segments of Lancaster Boulevard, and on portions of 5th Street East and 15th Street East (see Figure V-A-3).

Previously, Lancaster had other bicycles lanes throughout the City. However, as the City grew and traffic volumes increased, bicycle lanes were removed to provide automobile lanes. The bike lanes were located in the rights-of-way and were therefore lost when City streets were improved. For example, in the 1980 General Plan, the City proposed several bike facilities in the rights-of-way of existing arterials. Along the same arterials, turn lanes and roadway expansions were also proposed. As a result of this conflict, the City lost several additional existing and proposed bike lanes. Although the City has adopted a plan for future bike lanes and allocated funds for this purpose, there is no guarantee that bike lanes will not be lost again due to street widening. For this reason, a separate trail system outside the right-of-way is needed.

Table V-A-3
Antelope Valley Master Plan of Highways "Sketch Plan"

Route	Jurisdiction	Existing General Plan[1]	Proposed General Plan[2]	Right-of-Way Width	Priority[3]	Length (Miles)	Total Cost[4]
Route 138 (I-5/SR-14)	Caltrans		Yes	300'+1/C	A	36.0	$496,000,000
Route 14 (Avenue C/Avenue P-8)	Caltrans		Yes	300'	A	14.5	$132,000,000
Avenue P-8 (SR-14/90th Street East)	Palmdale	No	Yes	300'+1/C	A	8.2	$173,000,000
	Department of Airports						
	Los Angeles County						
90th Street East to San Bernardino County Line	Caltrans						
	Palmdale	No	Yes	300'	A	21.8	$371,000,000
	Los Angeles County						
Avenue H (90th Street West/90th Street East)	Caltrans						
	Lancaster		Yes	120'		14.0	$101,000,000
	Los Angeles County						
Avenue L (90th Street West/90th Street East)	Lancaster	No	Yes	120'	A	18.0	$130,000,000
	Palmdale						
	Los Angeles County						
Avenue D[5] (SR-14/90th Street East)	Lancaster		Yes	300'(?)			
	Los Angeles County						
	Edwards Air Force Base						
90th Street East (Avenue D/SR-138)	Palmdale	No	Yes	300'(?)			
	Lancaster						
	Los Angeles Airports						
	Los Angeles County						
90th Street West (Avenue H/Avenue L)	Lancaster		Yes	120'		7.5	$54,000,000
	Los Angeles County						

Table V-A-3 (Continued)
Antelope Valley Master Plan of Highways "Sketch Plan"

Route	Jurisdiction	Existing General Plan[1]	Proposed General Plan[2]	Right-of-way Width	Priority[3]	Length (miles)	Total Cost[4]
50th Street East (Avenue D/Pearblossom Highway)	Palmdale	Yes	Yes	150'	A	12.5	$117,000,000
	Lancaster			120'		6.3	$45,000,000
	Los Angeles Airports						
	Los Angeles County						
50th Street West (Avenue G/Avenue L)	Lancaster		Yes	120'		5.0	$36,000,000
	Los Angeles County						
Pearblossom Highway (SR-14/90th Street East)	Palmdale	Yes	Yes	120'		10.8	$78,000,000
	Los Angeles County						
87th Street East/90th Street East (Pearblossom Highway/Palmdale Boulevard)	Palmdale	Yes	Yes	120'		2.5	$18,000,000
	Los Angeles County						
Avenue T (Pearblossom Highway/90th Street East)	Palmdale		Yes	120'		4.6	$33,000,000
	Los Angeles County						
Palmdale Boulevard (47th Street East/170th Street East)	Palmdale	No	Yes	120'		7.7	$56,000,000
	Los Angeles County						
165th Street East/170th Street East (Pearblossom Highway/Palmdale Boulevard)	Los Angeles County	No	Yes	120'		5.0	$36,000,000

Table V-A-3 (Continued)
Antelope Valley Master Plan of Highways "Sketch Plan"

110th Street West (Avenue C/Avenue L)	Los Angeles County/ City of Lancaster	120'	8.7	
20th Street East (Avenue D/Avenue L)	City of Lancaster	120'	7.5	$54,000,000
120th Street East (Avenue D/SR-138)	City of Lancaster/ Palmdale/Los Angeles County	120'	16.0	$116,000,000

Source: Draft Antelope Valley "Sketch" Master Plan of Highways, 1991.

1 Existing General Plans as of 1991.
2 As of 1991, Lancaster and Palmdale were in the midst of updating their General Plans.

3 Priority A: 0-10 years
4 Estimated total project cost includes asphalt and concrete pavement

5 As indicated in the Antelope Valley Masper Plan of Highways "Sketch Plan" document.

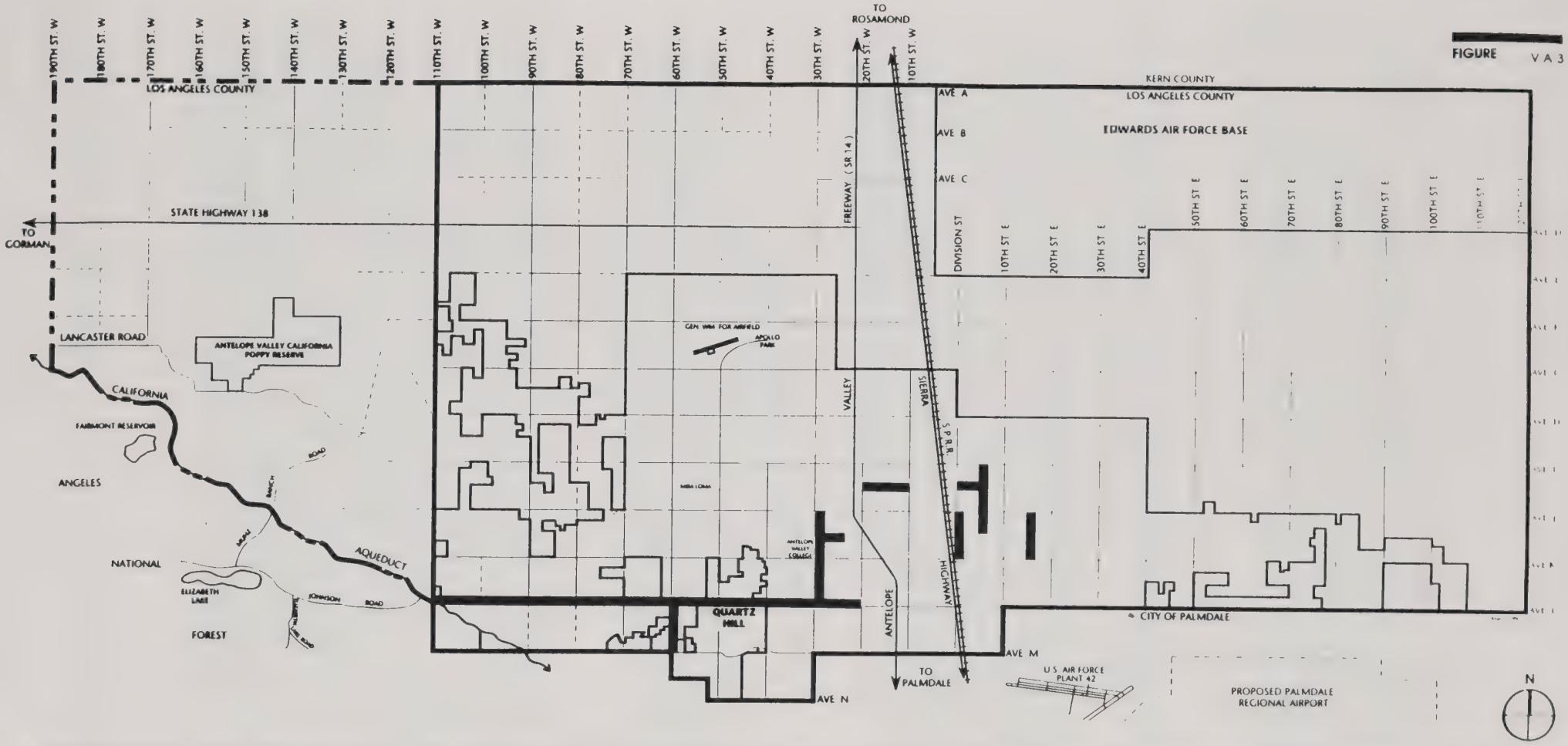
A transportation fund was established by the Transportation Development Act and requires each county in the state to annually set aside two percent of the total fund to develop bicycle and pedestrian facilities. This fund was intended to meet the needs of a bikeway transit system in California. The City of Lancaster has been allocated a portion of the Los Angeles County funds to be used for the construction, right-of-way acquisition, and preliminary engineering exclusively for the use of bicyclists and pedestrians. The Lancaster City Council adopted a resolution to use the money for ClassII bikeways. The City is proposing bikeways within the public right-of-way, as shown in Figure IV-E-1 of the Living Environment Chapter.

2. ANALYSIS

a. Conflict Between Circulation Plans

At present, there are few conflicts between the City of Lancaster's Circulation Plan and the plans prepared by Palmdale, Los Angeles County and Caltrans. Los Angeles County is in the process of updating their circulation plan to conform to the City of Lancaster. Conflicts that exist are primarily due to the lack of updated plans reflecting changes in land use intensity in the rural areas of the sphere of influence. In addition, Caltrans has no immediate plans for roadway improvements in the Antelope Valley or the SR-14 corridor, while the Los Angeles County Transportation Commission proposes that SR-138 be widened from four to six lanes (one additional lane in each direction) with passing lanes. The City of Lancaster also recognizes the need to widen and improve not only SR-138, but also SR-14.

FIGURE V A 3



PLANNING NETWORK

EXISTING BIKE LANES

EXISTING BIKE LANES

CITY OF LANCASTER
GENERAL PLAN

SOURCE: DKS Associates, March 1990.

The City of Palmdale, in its Draft Updated Circulation Element, proposes to upgrade several of its roadways to accommodate anticipated future growth. Several Palmdale roadways for which upgrades are proposed are also located within the Lancaster sphere of influence, including Avenue M and Avenue N in the east/west direction and 20th Street East, 50th Street East, 70 Street East, and 90th Street East in the north/south direction. Each of these roadways are proposed as major arterials which are consistent with the Lancaster Circulation Plan. Improvement of these roadways were not indicated on any Caltrans or Los Angeles County plans.

b. Identification of Existing Roadway Problem Areas

Many communities select LOS C or D as their design criteria for defining problem areas of roadway segments. The City may, consequently, want to identify roadway segments that are operating at LOS D or lower.

With few exceptions, the City of Lancaster arterial network currently operates at acceptable levels of service. A few arterial segments are currently operating near or above their current capacity at Level of Service D, E or F. These particular locations are shown in Figure V-A-4, and tabulated in Table V-A-4. The congested segments are primarily located in the downtown area bounded by 40th Street West, Avenue J, 20th Street East, and Avenue M. In general, the congested segments occur on major arterial sections that have yet to be built to their full major arterial cross-section. These segments of the roadway system will be unable to support future development unless roadway improvements are proposed for these particular roadway segments so as to improve their LOS.

c. Impact of Commuter Traffic on Circulation and Efforts to Increase Employment Growth Rates

The City of Lancaster and the entire Antelope Valley region are characterized by limited employment opportunities, compared to the large number of people residing in the area. Therefore, a large portion of the work force must commute out of the City and Antelope Valley area to major employment centers in the Los Angeles Basin. Since the only significant thoroughfare out of Antelope Valley is SR-14, the route is congested, especially during peak morning and afternoon hours.

There are four (4) options available for reducing existing congestion on SR-14: 1) Consider providing alternative roadways out of the Antelope Valley area to relieve traffic volumes on SR-14. 2) Construct full right-of-way on Highway 138 from SR-14 along Avenue D to the existing Interstate 5 Freeway. This improvement will allow commuters, especially residents who will be living in new developments in the western region of the study area, another regional access from the Antelope Valley. The City, in conjunction with Caltrans, could also plan for another future east/west freeway which would traverse along the northern periphery of Lancaster. This would allow travelers a regional bypass of the City, thereby reducing traffic along roadways that lead into Lancaster. This option is obviously long-range and would cost large amounts of money to implement. 3) Promote bus and rail transportation as options to automobile travel. The City could formulate incentive programs to promote and encourage the use of bus and rail as alternative modes of transportation to employment centers. This would reduce commuter dependency on the automobile and would relieve congestion on the SR-14. 4) Increase the number and diversity of employment opportunities within the City and the Antelope Valley area.

The Antelope Valley has great potential for aerospace, Pacific Rim manufacturing, and other industries. Increased employment opportunities would ultimately reduce the number of people commuting out of the Antelope Valley and would reduce traffic volume on SR-14. This is most critical when considering the anticipated population increases projected with future development. If employment opportunities are not increased, relative to projected population increases, or if alternative modes of transportation are not encouraged or optional travel routes are not constructed, the congestion problems on SR-14 can only worsen.

d. Measures to Maximize Roadway Capacities

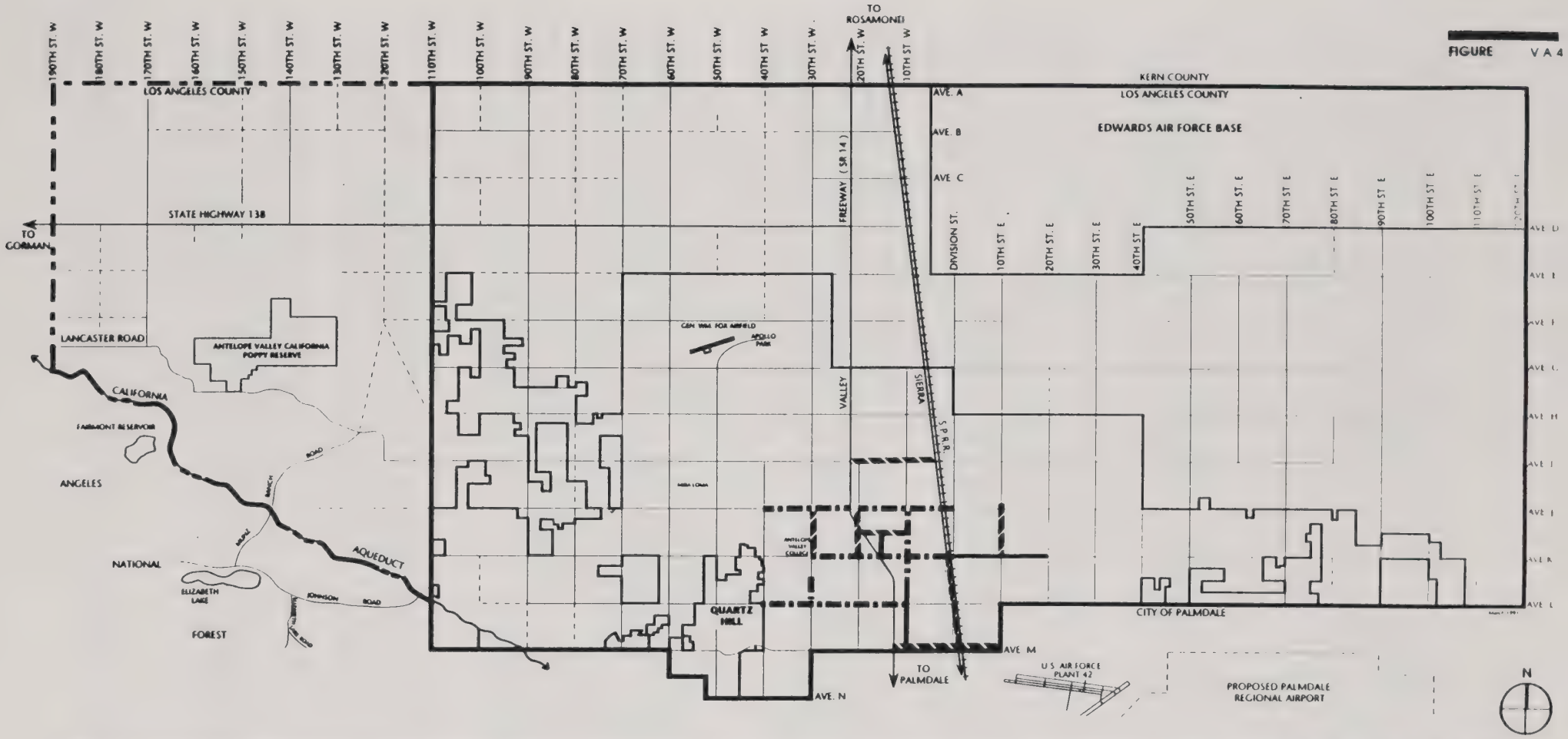
The City and its study area contain several undersized and incomplete roadways, roadways with unpaved sections, and roadways which continually widen and narrow. Future development will result in significant increases in regional and local traffic volumes. Although new development is generally required to construct adjacent roadways, the existing "pay as you go" system of roadway construction often leaves gaps in the planned roadway system until an area is built out.

In response to this anticipated increased amount of traffic volume and congestion and lowering of street capacities throughout the City, the City may want to consider measures to maximize the capacity of existing roadways, which, in turn, would better accommodate future demands and growth. At a minimum, the following measures may be considered as part of the General Plan Update process:

- Improve existing facilities
- Construct and provide future facilities
- Ensure better relationship of roadways with land uses
- Promote Transportation System Management
- Ensure better interface with affected agencies
- Eliminate on-street parking where feasible
- Coordinate the timing of traffic signals
- Encourage alternative modes of transit
- Develop a local freeway system

Improve Existing Facilities As previously discussed, congested segments of the existing roadway system are primarily located in the downtown area bounded by 40th Street West, Avenue I, 20th Street East, and Avenue M. Roadway segments within this area are currently operating near or above capacity at either LOS D, E, or F. It is also known that these congested segments occur on major arterial sections that have yet to be built to the full major arterial cross-section because of non-contiguous development occurring within the area. Ultimate improvement of these undersized roadway segments to their respective approved rights-of-way would eliminate the widening and narrowing pattern of these segments, and would reduce traffic congestion and increase levels of service and roadway capacities by eliminating bottlenecks.

FIGURE V A 4



PLANNING NETWORK

LOS D

LOS E

LOS F

SOURCE: City of Lancaster

LEVEL OF SERVICE (LOS) OF EXISTING ROADWAY SEGMENTS (1989)

CITY OF LANCASTER
GENERAL PLAN

Another method of improving existing capacities would be to provide better signage, striping and signal synchronization, particularly on those roadway segments currently experiencing LOS D or lower volumes. These improvements would ensure more efficient traffic flow, which, in turn, reduces traffic congestion. The feasibility of providing the foregoing improvements is based on the City's ability to secure funding to actually construct the improvements. Options available to the City would be to pass portions of the costs to those future development projects which would most affect the improved segments and to establish improvement districts for the affected areas.

Provide Future Facilities Roadway capacities could also be improved by providing future facilities which present alternative travel options to the City. The Community Issues Report identified several options, including an extended regional arterial system, additional crossings of the north/south rail line which bisects the City, a SR-138 bypass, and an east/west freeway.

The original Lancaster General Plan, adopted in 1980, designated a peripheral loop around the City's central core. The intent of this loop was to provide a more efficient area-wide circulation system that would concentrate traffic on high speed, limited access roadways. Currently, the City, in cooperation with Palmdale and Los Angeles County, is proposing to expand the loop so that it will function as a regional system which would connect cities and communities in the Antelope Valley and would provide a high speed, high volume traffic corridor with limited access and interruptions (see Figure V-A-5).

To facilitate an efficient regional arterial loop, rail crossings must be built. There are currently no grade separated crossings in the City. Therefore, east/west crossing traffic could be delayed for up to six minutes as trains travel on the tracks. This can cause extreme congestive conditions on intersecting east/west roads and connecting roadway segments which intersect the rail line and Sierra Highway. Additional crossings must be provided. This will be more comprehensively discussed in the following sections.

All of these proposed improvements will incrementally improve regional and local circulation patterns which, would result in increased capacities of affected roadways. It is also assumed that capacities would increase as more facilities are constructed. As mentioned earlier, the feasibility of providing the foregoing facilities will be based on the City's ability to secure adequate funding to acquire additional right-of-way area and construct the facilities. In the short-term, the City must protect existing and future rights-of-way to provide the foregoing facilities where applicable. This is particularly important if an east/west freeway, and if one or more peripheral loops, are considered. The City may also want to begin analyzing the possible freeway interchange geometry, alignments, signalization, traffic distribution, etc., associated with any new freeway connection.

Ensure Better Land Use Relationships The land use plan for the City and its study area will be based on several factors. A critical factor will be the ability of existing and proposed transportation networks to support future land uses. Consequently, an effort must be made to logically relate the land uses with affected roadway segments. This could ensure more efficient traffic flow.

There is a need to encourage industrial uses and employment opportunities within the valley so as to reduce the number of commutes out of the City. If successful, this could result in reduced traffic volumes on SR-14. Secondly, there is a need to route major traffic flows around residential neighborhoods and rural areas. Diversion of traffic would maintain the integrity of existing and future urban and rural residential areas.

There is also a need to minimize, to the greatest extent feasible, the number of direct entries onto regional roadway corridors and major arterials from various commercial, residential, and industrial land uses. Minimizing direct access will ensure smoother traffic flow, reduce conflicts, and increase safety on affected corridors and arterials. Shared or reciprocal access to connecting commercial uses could also reduce traffic flow disturbance.

In summary, the City must consider the land use pattern/circulation relationship. Commercial and industrial uses could be developed near freeway interchanges; direct access could be provided from roads which divert traffic from major corridors and arterials. Residential and rural areas would not be directly accessed by major arterials; local streets would carry traffic from arterials into these areas.

The feasibility of ensuring a logical relationship between future land uses and associated circulation and traffic patterns would be based on the City's ability to encourage more employment opportunities within the City and to adhere closely to the land uses designated by the updated General Plan.

Promote Transportation System Management (TSM) TSM involves strategies to mitigate traffic congestion and/or air quality problems by encouraging the use of alternative commute modes instead of commuting alone. This is part of SCAG's Air Quality Management Program. TSM alternatives may include carpooling, public and private transit, alternative work/home programs, bicycling, and walking. TSM is a means of more efficiently utilizing transportation infrastructure and services by reducing the number of vehicles used to satisfy commuting needs. TSM is not a substitute for other transportation improvements; rather, it complements the range of circulation improvements needed in the City and its study area. The feasibility of TSM will be more fully discussed in following sections.

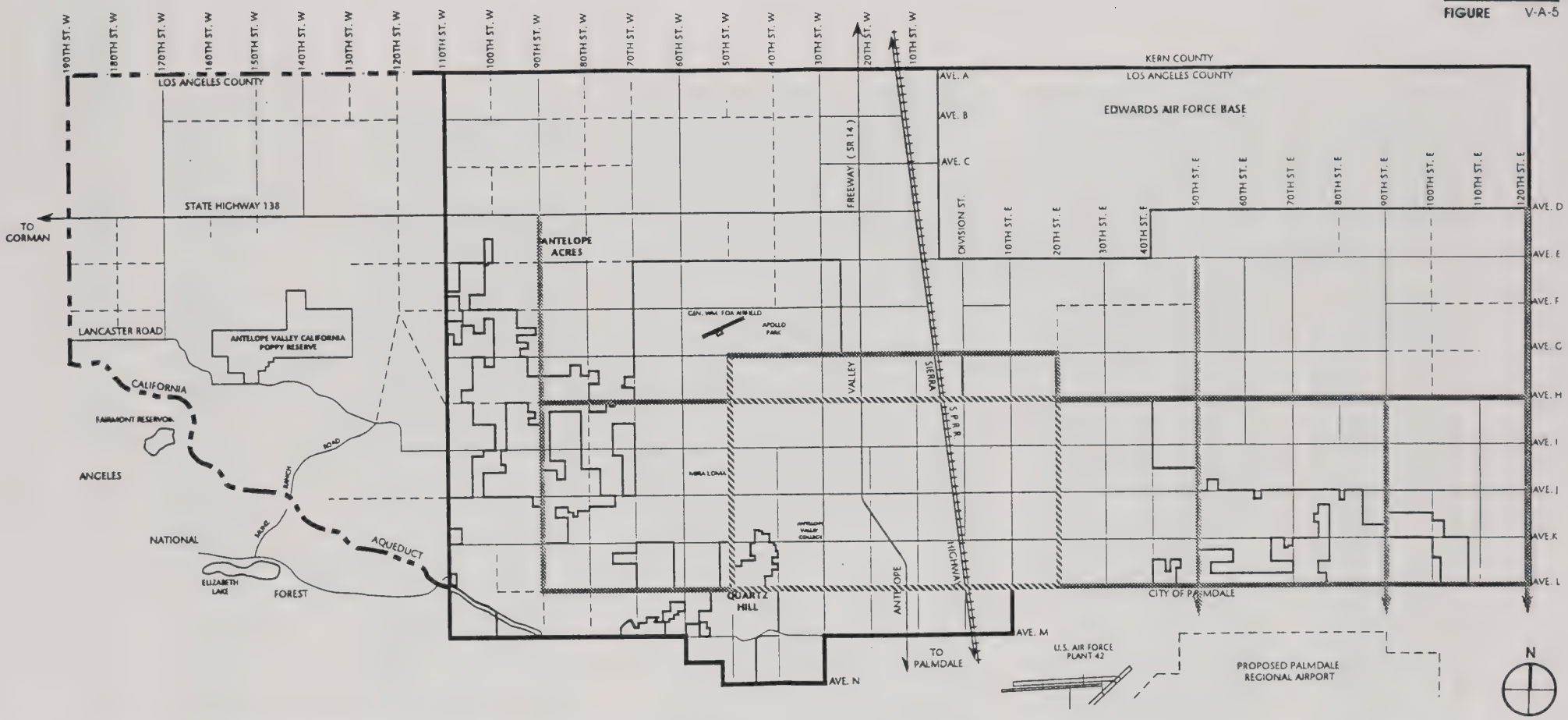
Insure Better Interface with Affected Agencies It is recognized that freeway improvements and expanded service would require cooperation of and implementation by several agencies, such as Los Angeles County and the City of Palmdale, and particularly Caltrans. Continued interface with these agencies to develop plans, implementation strategies, and funding options will enable the most effective regional and local facilities and improvements necessary to accommodate existing and future development in the City and its study area.

e. Implications of Proposed Freeway Improvements

This section evaluates the land use, economic, and environmental implications of expanding SR-14, widening SR-138 westerly to the I-5 Freeway, and constructing a freeway connection between SR-14 and I-15 Freeway.

Improvements planned would widen an existing alignment which connects to another existing alignment. Each improvement would have somewhat similar land use, economic, and environmental impacts. Each improvement would require additional land area for rights-of-way. Therefore, there will be impacts created on existing land uses which may encroach into the construction and right-of-way areas of each improvement. Such land uses would require displacement or relocation. If existing residences require relocation, suitable alternative areas for relocation must be found. The preferable alignment for the aforementioned improvements is one which would have the least impact on existing land uses. The City may want to focus any freeway expansion or alignment as close as feasible to employment-related uses. To the greatest extent possible, residential uses are to remain outside freeway construction areas. This would lessen the

FIGURE V-A-5



PLANNING NETWORK

DESIGNATED REGIONAL ARTERIAL SYSTEM (PERIPHERAL LOOP)

PROPOSED EXTENDED REGIONAL ARTERIAL SYSTEM

PROPOSED EXTENSION OF REGIONAL ARTERIAL SYSTEM

CITY OF LANCASTER
GENERAL PLAN

CITY of LANCASTER CALIFORNIA INCORPORATED NOV. 22, 1977

need to relocate displaced residences. It should be noted that any proposed expansion of SR-14 and/or extension of SR-138 along the vicinity of Avenue D would occur within existing City boundaries. Therefore, there will be more localized land use impacts. Existing land uses along proposed freeway alignments which encroach into the respective construction areas will be adversely impacted. The City will further evaluate the specific land use impacts associated with each freeway improvement during the respective planning stages of each improvement.

As identified in the Community Issues Report, residents believed that improved regional and local circulation is a necessity for encouraging economic development and employment opportunities into the Antelope Valley. Regional and local circulation will be incrementally improved with implementation of each aforementioned freeway improvement. With improved circulation, the Valley and City will be able to attract industry and facilitate future economic growth and development. On a local level, with less congestion on regional freeways, there will also be less traffic volume on local roads and streets within the City. Consequently, existing employment areas can expect to experience greater productivity from employees, since employees will be able to reach these employment areas more efficiently.

Short- and long-term environmental impacts are anticipated for each of the aforementioned freeway improvements. Each improvement will allow affected freeways to accommodate greater traffic volumes. However, emissions from congested traffic are also damaging. With greater traffic, ambient air quality will be degraded, as more pollutants and emissions are discharged into the air. These impacts will be more pronounced in areas located adjacent to improved freeway segments. Noise levels will also be increased. As with air quality, noise impacts will be greater for areas located nearest to improved freeway segments. There will also be short-term impacts created by construction. Congestion will occur on freeways which are being improved, due to the slowing of motorists viewing the construction activities. Short-term construction activities would also create air quality degradation from air pollutant emissions generated by construction equipment. Construction related dust will also degrade ambient air quality. As a reference, it can be expected that, for any given month of construction and grading, approximately 1.2 tons per acre of fugitive dust are generated at each exposed construction area. These impacts would be greater on land uses and areas located nearest to freeway construction.

Each freeway improvement will also generate specific environmental impacts. For example, pollutants, such as dust, resulting from the expansion of SR-14 could degrade the water quality of the California Aqueduct. Increases in air pollution and noise associated with widening of SR-14 will impact portions of the Angeles National Forest, as will the additional traffic that these improvements will generate upon completion. The widening of SR-14 to the Kern County line would generate dust and pollutants which may degrade the air quality near Edwards Air Force Base. This may temporarily impact flight test programs. Finally, the addition of lanes to SR-138 west of SR-14 would create additional traffic and increased air emissions and pollutants which may impact the nearby Poppy Preserve.

f. Roadway Hierarchies Based on Function and Aesthetic Image

Roadway classifications are defined as freeways, expressways, regional arterials, major arterials, secondary arterials, and collector and local streets. The existing roadway system is primarily designed to be an efficient transporter of traffic, and enhancement and viewing of aesthetic and scenic resources were not factors which contributed to design of the existing roadways.

Scenic resources within the City and its study area are those unique visual features that provide attractive views within or from the study area. Major visual resources include topographic features, local flora, archaeological sites, and historic buildings. Refer to Natural Environment, Section II-G, Scenic Resources, of this report for discussion of scenic resources. In general, views of local topographic features, such as Quartz Hill or the California Poppy Preserve area, as well as long distance views of the San Gabriel Mountains and open desert areas, should be considered in any roadway design. Roadway design in the western third of the study area must be sensitive to potential views of the Poppy Preserve, California Aqueduct, and the Portal Ridge Foothills. Roadway development in the central part of the City must be sensitive to existing, and potentially significant, historical resources. Finally, future roadways throughout the study area must consider significant visual resources, particularly along the Amargosa and Anaverde Creeks and the local Uplands south and west of the City. These resources are considered assets and amenities of the City. Consequently, the City may want to encourage those types of roadways which carry greater traffic volumes to be constructed along alignments which would have undisturbed views of the scenic resources. It is recommended that a new freeway or major arterial be designed and oriented so as to enhance views of these resources. Local roadways may continue to operate primarily as efficient transporters of traffic, as it is not as important for these roadways to be designed as scenic routes. For more information on preserving scenic resources along roadways, see Natural Environment.

Because of their importance as community resources, the City may want to consider improving the following roadways (the Antelope Valley Area Plan designates these roadways as scenic routes): Antelope Valley Freeway (Avenues A to M), Avenue K, Avenue M, 60th Street West, 90th Street West, 110th Street West, Lancaster Road, Willow Springs Road, and Munz Ranch Road. In addition to these proposed scenic routes, the following local roadways also should be considered as potential scenic routes, due to the significance of resources which can be viewed from these roadways: San Francisquito-Fairmont Road, Highway 138, and Avenues E and G. For more information on scenic highways, see Natural Environment, Section II-G, Scenic Resources.

g. Measures to Coordinate Sequence of Development

The City's existing roadway system generally operates at a good level of service (LOS C or better). With only some exceptions, most of the roadways remain uncongested and have capacities capable of handling existing traffic volumes. However, as future development occurs within the City and its study area, it can be anticipated that many other roadways will begin to experience increased traffic congestion and lower levels of service. Therefore, there is a need to anticipate future development and associated increased demands which will be placed on roadway capacities.

Currently, there is a substantial time lag between development and the provision of an adequate roadway network to accommodate, not only development-specific traffic, but also traffic generated from other neighboring areas. This has occurred since area roadways have almost exclusively been constructed by individual developers as part of their specific projects and because improvements have been typically required for only these roadways found within or connecting with the specific project.

The City has the opportunity, as part of the General Plan Update process, to evaluate anticipated traffic levels. Based on future land use, a traffic model has

been developed that allows the City to: 1) evaluate comprehensive traffic and roadway effects associated with anticipated development; 2) implement a Citywide program for monitoring local traffic levels to aid in the planning of current and future roadway capacities; and 3) formulate financing mechanisms that will ensure that the City's roadway system will accommodate future growth.

The Lancaster traffic model focuses on the City of Lancaster, the unincorporated lands within the sphere of influence, and the northern portion of the City of Palmdale, generally extending from Avenue N on the south, to Avenue A on the north, and from 120th Street West on the west to 120th Street East on the east. For modeling purposes, the study area was divided into 75 traffic analysis zones (TAZs), with an additional 25 zones located where roadways cross the analysis area boundary. These additional zones were included to represent trips to/from locations outside the study area, including southern Palmdale, Santa Clarita Valley, Los Angeles, and Bakersfield.

There are four key components of the traffic model: highway network, trip generation, trip distribution, and trip assignment, as well as the key data inputs and outputs for each component. The highway network component produces a computer representation of major street and highway systems within the study area. Travel times from the highway network were taken to use in the trip distribution model. The trip generation component estimates vehicle trips by traffic analysis zones, based on trip rates defined by trip purpose, and socioeconomic data including dwelling units, retail, office and industrial land uses, as well as other variables. The trip distribution component utilizes the vehicle trip end data, regional travel data, and the zone to zone travel time data, to produce zone to zone trip tables defining travel patterns within, into, out of, and through the study area. The trip assignment component allocates the zone to zone travel patterns to the highway network to produce daily and peak hour traffic volume forecasts on study area roadways.

The estimation of future traffic volumes is critical in terms of roadway infrastructure. As discussed in previous sections of this General Plan, urban growth in the City of Lancaster and the surrounding sphere has not only extended outward from the downtown, but approvals have occurred in areas which are often several miles from existing infrastructure. This has not only caused problems with regards to the provision of services, discussed in detail in the Municipal Services and Facilities Chapter, but also the need for roads to link new development to other areas. In most cases, the City has not required new developments to pay for roadway improvements outside of the development. The result has been that roads remain unimproved, because it often takes years for the appropriate agency to expand the road.

To help solve this problem, the City of Lancaster has introduced the Urban Structures Program (see the Preface -- Primary General Plan Strategies). Through this program, the City requires private developers to finance and build infrastructure, such as roads. Developers will be responsible for increasing the carrying capacity of the surrounding roadway network to accommodate any proposed project. The basic idea is to require new developments to pay for off-site improvements directly associated with the need generated by new growth. As urban development fills in the vacant land between isolated developments and existing development, the original developer of the street may be reimbursed.

To ensure that a roadway system exists to effectively accommodate future growth, the City must first approve a land use plan which recognizes its economic, social, and environmental needs. Secondly, those roadway segments which are

presently operating at congestive LOS D or lower and those segments which are operating at LOS C must be monitored to determine the level of congestion associated with existing volumes and projected future volumes, based on the accepted land use plan. Segments currently experiencing LOS C, may experience LOS D or higher traffic volumes with future growth and development. With this understanding, the City has provided a framework and reference from which to base its decisions regarding the sequence of development, associated roadway improvements, and fiscal responsibilities.

As shown in Table V-A-4, several roadway segments already experienced LOS D or lower conditions by 1989. The City must be cognizant of those future land uses which may further congest those segments. The City may want to formulate plans to improve those segments and to consider establishing assessment districts or other financing methods to assist in funding for future roadway improvements. With the establishment of these districts, future developers would be given a schedule for their pro-rated contributions and fees for funding these improvements.

h. Recent Accident Data

The Los Angeles County Road Department prepares semi-annual reports which identify high accident locations within Los Angeles County. The most current report, dated November 3, 1989, indicates that, out of a total 195 surveyed intersections, 21 intersections within the City of Lancaster are characterized by a high incidence of accidents. However, since November of 1989, numerous improvements were made to the street system, which reduced the accident potential at many of these intersections. This accident data is insufficient to make analysis or develop patterns which have any statistical significance, because it is raw data which may or may not indicate a potential accident problem.

i. Some Measures to Reduce Accidents

This section identifies measures to reduce the number of accidents within the City. Discussions with the City's Public Works Department indicate that in 1989, the City began a formalized program of measures to reduce the incidence of accidents within Lancaster. In addition, staff refers to periodicals and reports prepared by the U.S. Department of Transportation in formulating roadway improvements to reduce accidents at specified intersections.

The following identifies a few of the many possible accident-reduction measures, in the context of the accident report discussed in the previous section. Design features, traffic controls and/or maintenance measures may be considered as valid alternatives for improving intersections. To begin with, maintenance measures such as increasing the illumination of street lights or cutting overhanging tree branches are possible methods of improving views and lines-of-sight of motorists. Rear end collisions, a common type of intersection accident, may occur due to several reasons. For example, visibility may have been poor; in which case, the aforementioned measures would alleviate this problem and improve views. Secondly, there may be single lanes for left or right turns and also straight ahead traffic. Accidents will occur when single lanes are expected to route traffic in several directions. Design features such as the provision of a left or right turn lane can be used for turning traffic, while another lane can be used to route straight ahead traffic. Finally, accidents may be reduced, with improved traffic control.

Presently, there are several methods of controlling traffic in the City, including four-way stop signs, pre-timed signals, and FTA signals. It is believed, however,

that most rear end, right angle, left-turn, and right-turn collisions would be reduced to the greatest extent if left-turn or right-turn only signals were provided. These signals would reduce the number of options available to motorists and precisely dictate when turns could be made. However, by providing separate phasing for left-turns, time for other movements is reduced, delay and congestion is increased, signal coordination is degraded and the need for providing more travel lanes is increased.

Prioritizing the provision of these aforementioned improvements is not easy, given availability of funds to finance any improvement is limited. In addition, analyzing the trade-offs that accompany accident reducing measures is extremely difficult. However, in response to these concerns, the City has begun a more proactive, rather than reactive, program.

j. Guidelines for Highway System Surveillance

In 1990, the City hired a traffic safety engineer, established a rating system, and has begun to study and make improvements to be more proactive in their approach to traffic accidents. The traffic safety engineer's primary responsibility is to establish a program of monitoring high priority intersections and recommending feasible methods of improving these intersections so as to reduce the incidence of accidents. Action plans and financing programs will also be proposed and implemented to the greatest extent feasible. The creation of this Staff position and establishment of traffic accident mitigation programs represents a positive method of not only monitoring and surveying intersections and roadway segments, but also implementing feasible options of effectively reducing accidents within Lancaster.

k. Effectiveness of Highway System to Provide for Emergency Service Vehicles

Discussions with the Public Works Department indicate that, in general, the City's overall roadway system does not adversely impede the movement of emergency service vehicles. The only major problem presently experienced relates to the impediment of east/west traffic due to the railroad line, which bisects the City in the north/south direction. Trains travel through the City every hour and will halt traffic for up to six minutes. This problem will be further discussed in following sections.

The ability of the highway system to support emergency service vehicles is adequate. Future development, however, will necessitate an increase in existing access locations and number of streets. Additionally, site access from major arterials at or near places of great public assembly will be needed as sites, including the fairgrounds, high schools, and parks, continue to grow.

To improve future emergency service vehicle maneuverability and response times, a preemption signal system can be a potential option. It is estimated that the speeds of response time can gain by 10-25 percent with this option. Two systems of this caliber can be used. The high frequency radio remote control activates the traffic signals from up to 300 feet so that emergency service vehicles can pass through the intersection, without waiting at red signal lights. Both can be activated from any direction, both are inhibited by the elements. For one radio system, a licensed frequency must be obtained. The second system utilizes an optical strobe light aimed in a direct path to be activated.

The installation of traffic signal arrows for protected left turns may keep intersections clear of conflicting traffic movements; computerized traffic signal

synchronization can assist in easier movement of vehicles; right turn pockets can also alleviate the stoppage of traffic. These systems can assist in improving the effectiveness of emergency vehicle response during peak travel hours.

I. Transportation Systems Management

Transportation System Management (TSM) involves strategies to mitigate traffic congestion and/or air quality problems by moving traffic more efficiently to make maximum use of the existing system. TSM actions include a variety of low-capital investment strategies to improve transportation service by making more efficient use of the highways and transit systems already in place and by reducing the need for new capital investments and transit operating assistance. In general TSM include techniques to: (1) make better use of the existing road space, (2) reduce auto usage in congested areas or time periods, and (3) increase transit ridership through improved transit service and efficiency. TSM alternatives include, but are not limited to:

- Carpooling
- Vanpooling
- Public or private transit
- Alternative work hours programs (flex-time, etc.)
- Telecommuting (working from home or at satellite facilities)
- Bicycling to work (creating new bicycle facilities)
- Walking to work

Strategies to encourage these alternatives include:

- Community traffic management programs
- Rideshare matching assistance
- Parking control strategies
- Financial incentives for ridesharers
- Preferential parking locations for van and carpoolers
- Furnishing information on alternative modes
- Operation of vanpool programs or transit services
- Disincentives for drive alone commuters
- Facilities at employment sites, such as bicycle racks, carpool drop-off locations, etc.

TSM is a means of more efficiently utilizing transportation infrastructure and services by reducing the number of vehicles used to satisfy commuting needs. TSM is not a substitute for other transportation improvements, but, rather, it complements the range of circulation improvements identified in the General Plan. Additionally, TSM strategies can help alleviate congestion on roadways during the actual construction and provision of future roadway improvements.

Transportation Systems Management (TSM) can be most effective if implemented by future tenant-employers in conjunction with building managers. Tenant-employers could have the greatest influence on the commute behavior of employees by affecting their work hours, benefits, and other policies and programs. Therefore, many trip reduction alternatives encouraged by TSM can be placed on tenant-employers. It should be noted that all large tenant-employers (with 100+ employees) in the South Coast Air Basin are now required to develop and implement trip reduction programs in compliance with the South Coast Air Quality Management District's (SCAQMD) Regulation XV. It is anticipated that this, or similar regional requirements, will soon apply to smaller tenant (25+ employees) and/or multi-tenant buildings. Therefore, TSM is already being practiced in Southern California. Future developers will be required to comply with established SCAQMD regulations and appropriate TSM requirements.

Transportation System Management Goals Regardless of the land use plan for the City and its study area and associated circulation improvements, most roadways will experience congestion to some level. In recognition of this, the following general goals can be established to ensure that TSM alternatives and strategies are enacted:

- Increased traffic levels generated by new development can be mitigated by developers and property owners to the greatest extent feasible through transportation system management strategies aimed at reducing the number of peak period trips.

- TSM strategies can be implemented to provide immediate relief from congestion in anticipation of future circulation improvements.

- Provisions of the regional Air Quality Management Plan that pertain to the City of Lancaster can be partially addressed through TSM requirements placed on new development within the City and its study area.

- Future developer and property owner requirements can be aimed at instituting TSM programs at new employment sites in anticipation of the need for tenant-employers and building managers to comply with SCAQMD's Regulation XV.

Implementation of Transportation Systems Management TSM will be most effective in potential future business and industrial parks and larger employment centers. The City may want to consider the feasibility of establishing a Transportation Management Association (TMA), which would act as the lead for implementing and enforcing TSM programs. The association would oversee TSM programs established for future developments such as business and industrial parks, and future developments which have tenant and employer relationships. TMAs would be proactive organizations formed so that tenant-employers, developers, building owners and managers, local government representatives, and others could work together to collectively establish policies, programs and services to address local transportation problems. TMAs could also provide coordinated, centralized TSM services to member firms and organizations. The economies of scale to be gained in pooling resources and commuter information could be a very effective means for developers, property owners, and tenant-employers to comply with established local or regional trip reduction requirements.

If the City of Lancaster deems it necessary to implement a TSM program, in addition to the specific requirements on individual developers and property owners, a Transportation System Management fee may be imposed on all new development in order to fund such a program. Many communities adopt such fees to support TMA a TSM program. The amount, incidence, and procedures for collecting the Transportation Demand Management Impact Fee would be determined at the time of its imposition and would be based on the direct costs of designing and implementing a program for the potential development area.

In addition to the impact fee, if appropriate, future developers and/or the City may want to prepare or provide the following:

- Funding and Implementation Plan - All future work sites with more than 100 employees would provide an estimate of the start-up and on-going costs associated with TSM plan implementation. The sources of these funds to pay for these costs would also be listed.

- Monitoring and Evaluating Plan - Vital to the success of any TSM program would be the tracking of its progress. If one ridesharing mode becomes unpopular and another very popular, more effort should be applied to the popular mode. Monitoring and evaluating the commuting habits and attitudes would be very valuable to the program. Therefore, the tools and strategies to monitor and evaluate the first year's program could be included in the first year's plan. Subsequent plans would include a monitoring and evaluation report stating the progress and short falls of the program. It would be important to also include a summary of the TSM program, its effectiveness, and its future direction.

- Employee Transportation Coordinator - Each future work site could provide at least one coordinator who would be responsible for plan preparation and implementation.

Regarding enforcement, failure to submit or provide the foregoing could result in the denial of the Certificate of Occupancy or business license for any proposed project under Regulation XV, if the City desired. All future developers and the City must make significant effort towards the goals of the TSM program for the program to be effective.

B. PARKING FACILITIES

1. EXISTING SETTING

a. Existing Parking Standards

When the City incorporated in 1977, it adopted the Los Angeles County Zoning Ordinance, which included parking standards. In the 1980s, however, the City found that the County's parking standards were not sufficient to accommodate many of the new types of development that were beginning to locate in Lancaster. This was particularly true in the case of shopping centers, health clubs, commercial office developments, and auto repair shops. For this reason, the City revised commercial/office parking standards to require additional parking.

The City also examined residential parking concerns, specifically with regards to apartments. The County requirements, which required between 1 and 1 1/2 spaces per unit, were again inadequate for City purposes. Deficiencies resulted from the fact that, generally, multi-family residents in Lancaster are more affluent, and own more automobiles than apartment and condominium dwellers in Los Angeles County, as a whole. To provide additional parking, the City increased the number of parking spaces required for multi-family developments, by linking parking standards to the number of bedrooms.

The changing nature of industrial uses also posed a problem in terms of parking. Instead of the traditional heavy manufacturing, industrial developments are more often a combination of research and development, office, and warehouse uses. To figure the amount of parking, the City split the floor-area-ratio according to the percentage of different uses. However, this resulted in an overabundance of parking. Although minimum parking is an extremely important issue, requiring too much parking is equally ineffective, expensive, wastes valuable land, and is a disincentive to alternative modes of transportation, a critical issue in the Antelope Valley.

b. Compact Car Parking

The growing number of economy cars makes it practical for parking facilities to be designed to include larger numbers of smaller parking spaces. Compact parking spaces allow more cars on the same size piece of property and minimizes the overall construction costs of new facilities. In addition, restriping existing lots to provide smaller car spaces presents a low-cost means to add additional spaces, where required.

There is a concern about the low number of parking spaces designated for compact cars. The County requirement allowed up to 20 percent of parking spaces to be for compact cars, but City surveys found that between 40 and 45 percent of the automobiles located in local parking lots were compact. In 1985, the City responded to the surveys by increasing the parking requirement, allowing 25 percent of parking spaces to be designated for compact cars. This percentage may still be too low and need to be increased in the future.

c. Parking Landscape

In general, parking lot planting has not been a priority in Lancaster. This has led to unattractive developments, particularly shopping centers, with vast areas of concrete parking areas and little or no landscaping. These parking lots are of particular concern in the summer when the desert heat is intensified by unshaded concrete and asphalt. The importance of incorporating vegetation in parking design is being recognized and beginning to become an important aspect of the design review process in Lancaster. For more information see Physical Development, Chapter VII.

2. ANALYSIS

a. Relationship of Parking With Street Capacity

This section identifies conflicts between the utilization of streets for either street parking or vehicle travel. The need for street parking is a function of the ability of parking lots and off-street parking to accommodate parking demands. In other words, if off-street parking is inadequate, motorists will utilize the streets to park their automobiles. Therefore, prior to discussing street parking, off-street parking in the City must first be evaluated.

The only area within the City which provides extensive street parking is the downtown area, along Lancaster Boulevard. This is due to insufficient off-street parking in downtown Lancaster. Refer to Figure V-B-1 which identifies the location of existing and future parking lots, and Table V-B-1 which indicates the number of spaces provided and status of each lot.

Street parking problems are also beginning to develop in several areas of the City outside of downtown, particularly along Avenue J and Avenue I. Several medical and office buildings are located along this arterial street, which create extensive demands for parking. In addition, new strip commercial developments are located within this section and are utilizing street rights-of-way for parking. There have also been complaints from residences regarding on-street parking along Beech Street between Avenues J-4 and J-8. This is due to the many apartment buildings in the area and lack of off-street parking.

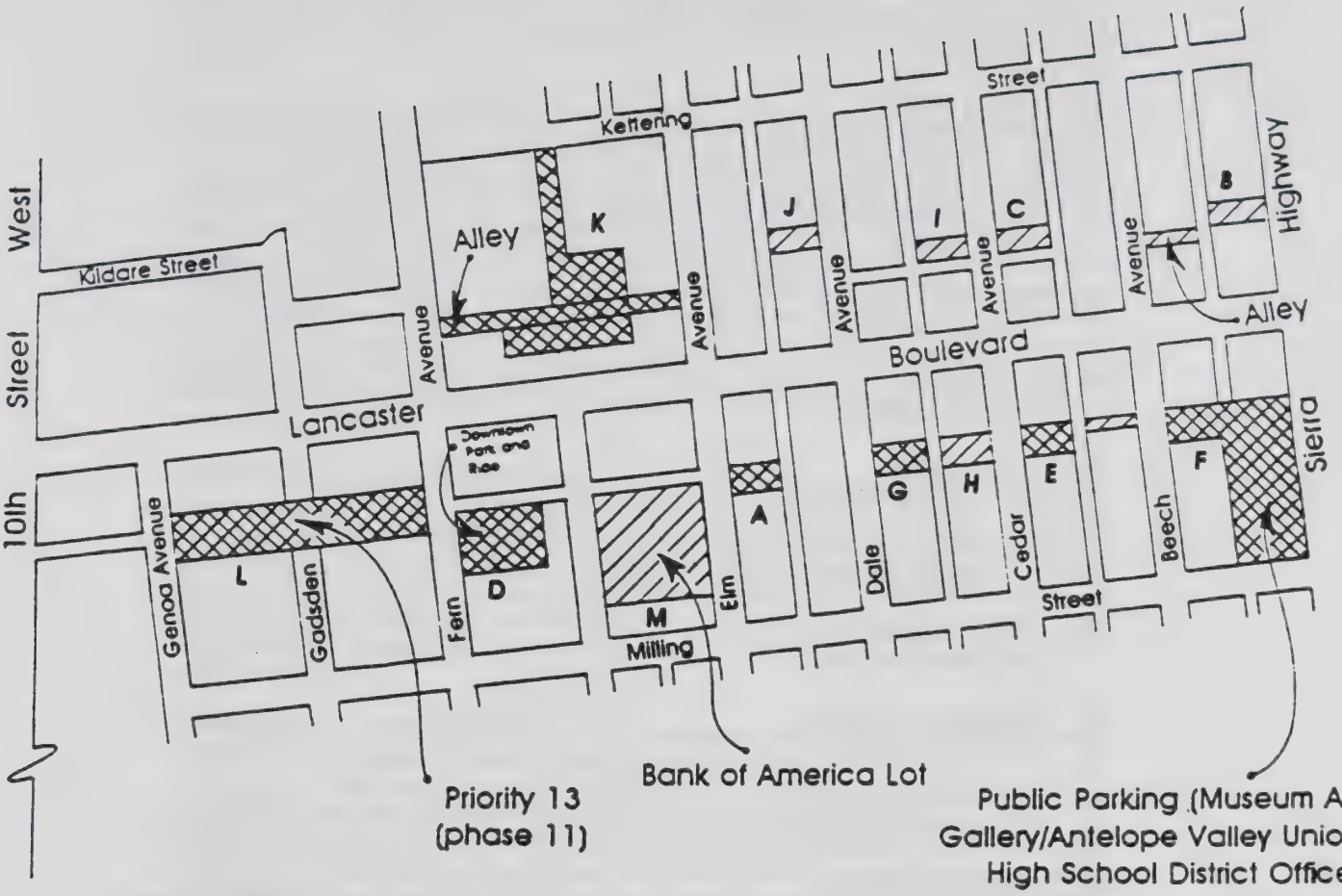
Street parking is currently permitted within some areas of the City, however, this may need to be reevaluated in the future. With anticipated future growth and development, many of the existing streets within the City will become overburdened with traffic. A conflict may be created, as street parking will reduce affected street capacity by utilizing lanes which could be used for additional vehicle travel, acceleration or deceleration, and parallel parking movements. Hazards to motorists and pedestrians crossing affected streets could also be created, since congestion and reduced levels of service would occur.

b. Identification of Needed Parking Improvements

This section summarizes needed parking improvements and also discusses alternative parking financing methods and parking control systems.

As previously discussed, there is a need for additional off-street parking, particularly within the downtown area. Construction of additional parking lots is one option of providing off-street parking. Another option is to continue to require the provision of off-street parking with future commercial, industrial, and multi-unit residential developments. The logistics and costs of constructing additional parking lots are much more involved than requiring future developments to provide additional off-street parking opportunities.

FIGURE V-B-1



NOT TO SCALE

PROPOSED

EXISTING AND UNDER CONSTRUCTION

PLANNING NETWORK

EXISTING AND PROPOSED PARKING LOTS IN DOWNTOWN AREA

CITY OF LANCASTER
GENERAL PLAN

SOURCE: City of Lancaster, Department of Public Works, 1990.
Lancaster Planning Department, 1990.

Table V-B-1
Parking Lot Status[1]

	LOCATION	SPACES	STATUS
(a)	Sierra Hwy. S/O Lancaster Blvd. (Museum/Art Gallery)	178	Completed
(b)	Elm to alley S/O Lancaster Blvd.	24	Completed
(c)	Eastside of Fern S/O Lancaster Blvd. (Park & Ride)	70	Completed
(d)	Eastside of Cedar S/O Lancaster Blvd.	22	Completed
(e)	Eastside of Date S/O Lancaster Blvd.	60	Completed
(f)	Fern to Elm N/O Lancaster Blvd.	127	Completed
(g)	Fern to Genoa S/O Lancaster Blvd.	185	Completed
(h)	Cedar to Beech N/O Lancaster Blvd.	30	Funded/bid phase
(i)	Westside Sierra Hwy. N/O Lancaster Blvd.	20 est.	Preliminary Design
(j)	Westside of Beech S/O Lancaster Blvd.	20 est.	Preliminary Design
(k)	Westside of Cedar N/O Lancaster Blvd.	20 est.	Preliminary Design
(l)	Westside of Date N/O Lancaster Blvd.	20 est.	Preliminary Design
(m)	Westside of Cedar S/O Lancaster Blvd. (Cedar Street Complex)	30 est.	Preliminary Design

Source: Lancaster Redevelopment Agency, 1991.

If the City continues to permit on-street parking, additional rights-of-way may be acquired for road widening and the provision of additional lanes. The majority of the roadway segments in the City are two lanes. If street parking is permitted, only one lane in each direction could be utilized for travel, depending on the right-of-way, which could be inadequate to maintain on-street parking and two lanes of traffic in both directions. The City would need to construct all roadway segments to their ultimate planned widths. In addition, if traffic continues to increase in developed areas, parking could be removed from arterials to improve the level of service.

There are several methods of financing off-street parking improvements such as parking lots, including private contributions, improvement districts, public programs, and federal programs. Private contributions relate to the provision of off-street parking by future developments within the City and its study area. Contributions are not required as a standard condition of approval for new projects in the downtown area. Future commercial, industrial, and multi-unit residential developments are required to provide and/or finance off-street parking in accordance with the City's parking requirements identified in the Zoning Ordinance. The provision and/or financing of off-street parking in association with the aforementioned land use developments would contribute to the needed parking supply of the City, and would help alleviate existing and anticipated future parking demands.

The City may also establish Parking Assessment Districts to acquire land for parking structures or lots and to finance anticipated improvements. Parking Assessment Districts are established for a particular site, typically within financial, downtown, or commercial areas. Those business people and property owners, operating within the district would then be assessed fees for improvements. It is anticipated that these people would then recoup back their assessments when revenues are increased due to increased patronage associated with the additional parking.

By ordinance number 521, the City established the Lancaster Parking and Business Improvement District (PBID), located in the downtown area of the community. This ordinance was enacted at the request of the majority of the businesses operating within the district boundaries for the purpose of promoting business activities in the downtown. The PBID is operated by a separate organization comprised of downtown merchants and professionals, consistent with an agreement with the City. The City imposes a separate charge for business within the district, pursuant to the PBID ordinance, which is collected as part of the normal business license fee required of all business located within the City. The City provides these funds to the downtown merchants group (Lancaster Old Town Site committee, "LOTS") for the implementation of promotional activities to the district and its members.

As part of the revitalization efforts for the downtown/Lancaster Boulevard area, the Lancaster Redevelopment Agency has pursued the construction of public parking spaces within the PBID area. As of fiscal year 1991-92, approximately 518 new public parking spaces have been constructed or budgeted for improvement. Moreover, a public parking facility was constructed as part of the rehabilitation for the Museum/Art Gallery and the Antelope Valley Union High School District administrative offices. This improvement provided an additional 178 pubic parking spaces in the downtown area. When complete, the Lancaster Redevelopment Agency proposes to provide an estimated 806 new public parking spaces to serve the downtown business community, as well as public facilities and attractions located in downtown Lancaster.

Funds for the construction of these public parking facilities come from two primary sources; Tax Increment Bond proceed funds and monies collected for a Parking In-Lieu fee as provided in the City's zoning ordinance. The proceeds from either short term notes or longer term bonds are received by the Agency. This is a result of pledge of future Tax Increment revenues to pay the debt service of the notes or bonds. The amount of the Parking In-Lieu fee is set by the Lancaster Redevelopment Agency, and paid to the Agency by individual development projects that cannot otherwise meet the zoning requirements for parking. This parking fee allows for the purchase of parking credits, wherein the Agency uses funds collected for this purpose to acquire sites and improve additional public parking within the downtown area. A third source of funds that have been utilized is from State gas tax for the establishment of Park and Ride lots within the downtown area.

C. PUBLIC TRANSIT

1. EXISTING SETTING

Public transit services in Lancaster include fixed route bus services, inter-City bus services, commuter van services, and para-transit services.

The bus transit route system in Lancaster has expanded over the last 10 years reflecting some of the changes in land use patterns and population distributions. Originally operated as a private, for-profit business, the system began experiencing financial troubles. In 1980, the County of Los Angeles began subsidizing the bus program. Currently, the City of Lancaster pays 40 percent of the cost for the bus system, with the County of Los Angeles and the City of Palmdale each paying 30 percent. Today, the buses, vehicles, maintenance, and dispatching are still provided by the original privately owned carrier (Antelope Valley Bus Lines), but service parameters such as routes, schedules, and hours of operation are determined by the County of Los Angeles, through its Department of Public Works.

Antelope Valley Bus Lines offer approximately 12 round trips per day between the City of Lancaster and Edwards Air Force Base (Main Base, NASA, G.E. or rocket range); two round trips per day between Lancaster and Lockheed in Burbank; and one round trip per day each to El Segundo and Hawthorne. The County of Los Angeles operates four buses which leave City Park and Ride lots each day; two travel to downtown Los Angeles and two to Canoga Park (see Figure V-C-1). According to a County study, every day over 2,900 passengers currently ride buses to jobs in Los Angeles and the San Fernando Valley.

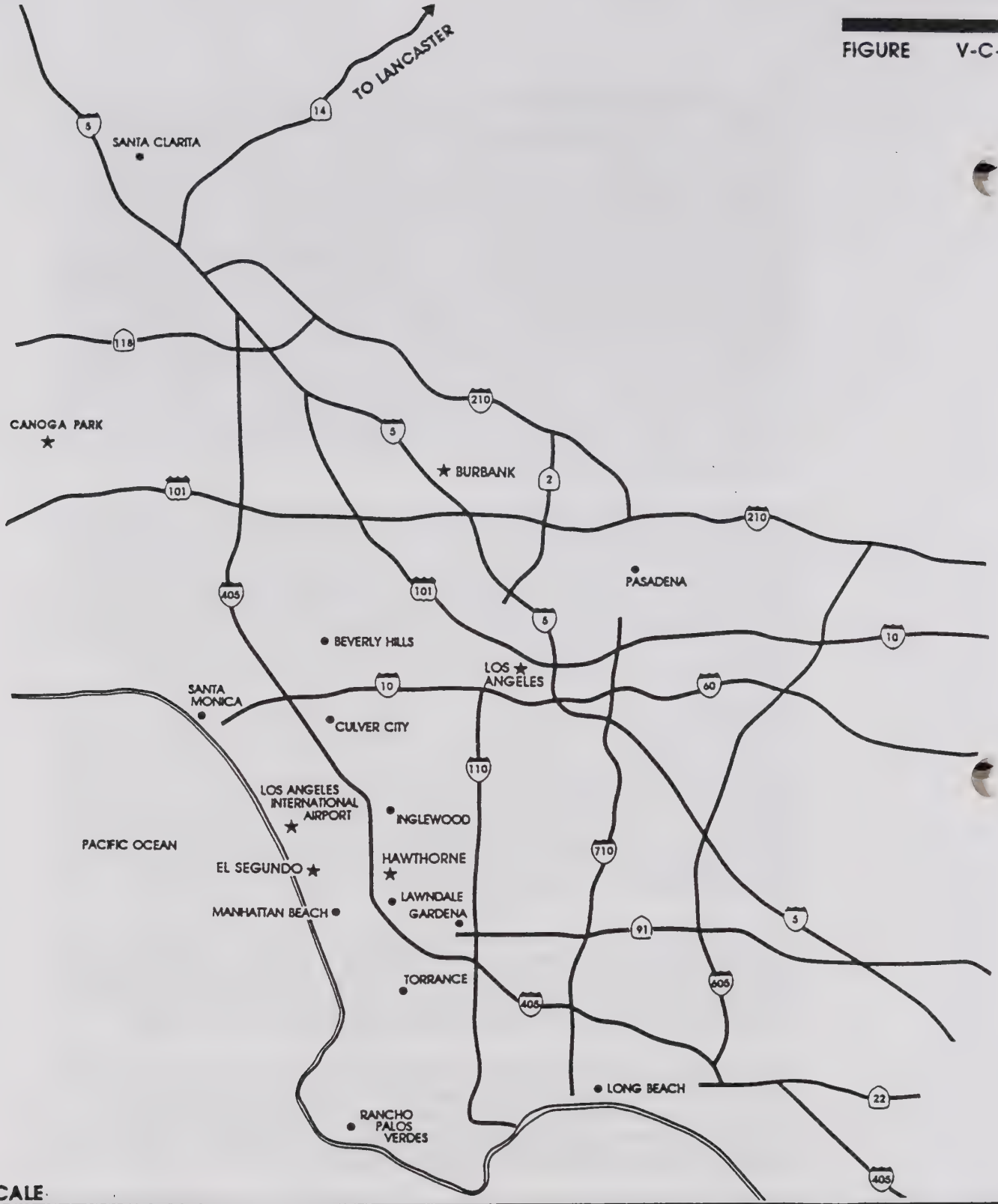
The Antelope Valley Bus Service also operates three fixed-route lines within the Antelope Valley. The routes are illustrated in Figure V-C-2. Route 1 operates between Lancaster and Quartz Hill, Route 2 operates between Lancaster, Palmdale, and Littlerock, and Route 3 operates in the area east of downtown. These lines run Monday through Friday, generally operate on one-hour headways. Route 1 is the only bus line with Saturday and Sunday service. Depending on the route and location, service starts at about 6:30 AM and ends at approximately 6:30 PM. In addition, there are 12 "special services" routes which operate primarily in the mornings and afternoons and service the local schools.

The existing fixed-route bus service primarily serves seniors making shopping, medical, and recreational trips, as well as students going to and from school. The second highest usage is work-related trips. One unique aspect of Lancaster's service is that, in addition to boarding at the posted bus stops, buses can also be flagged down by riders at any point along the route where it is safe to stop.

Greyhound Lines provide Lancaster with bus service to other cities. Lancaster is an intermediate stop along routes heading between northern California and Los Angeles. Service is limited to two trips per day in each direction. A limited number of Lancaster residents use this service as a commuter bus to get to and from work in areas such as downtown Los Angeles.

Orange Belt Stages, a charter bus company since 1917, was awarded a contract from Amtrak to provide daily bus service from the Antelope Valley to Amtrak trains in Bakersfield and Los Angeles (see Figure V-C-3). Bus-to-train service began in April 1990, with routes from the Antelope Valley to Bakersfield, with stops in Tehachapi and Mojave. There is also a route to Los Angeles that will stop in San Diego.

FIGURE V-C-1



NOT TO SCALE

REGIONAL ANTELOPE VALLEY TRANSIT DESTINATIONS

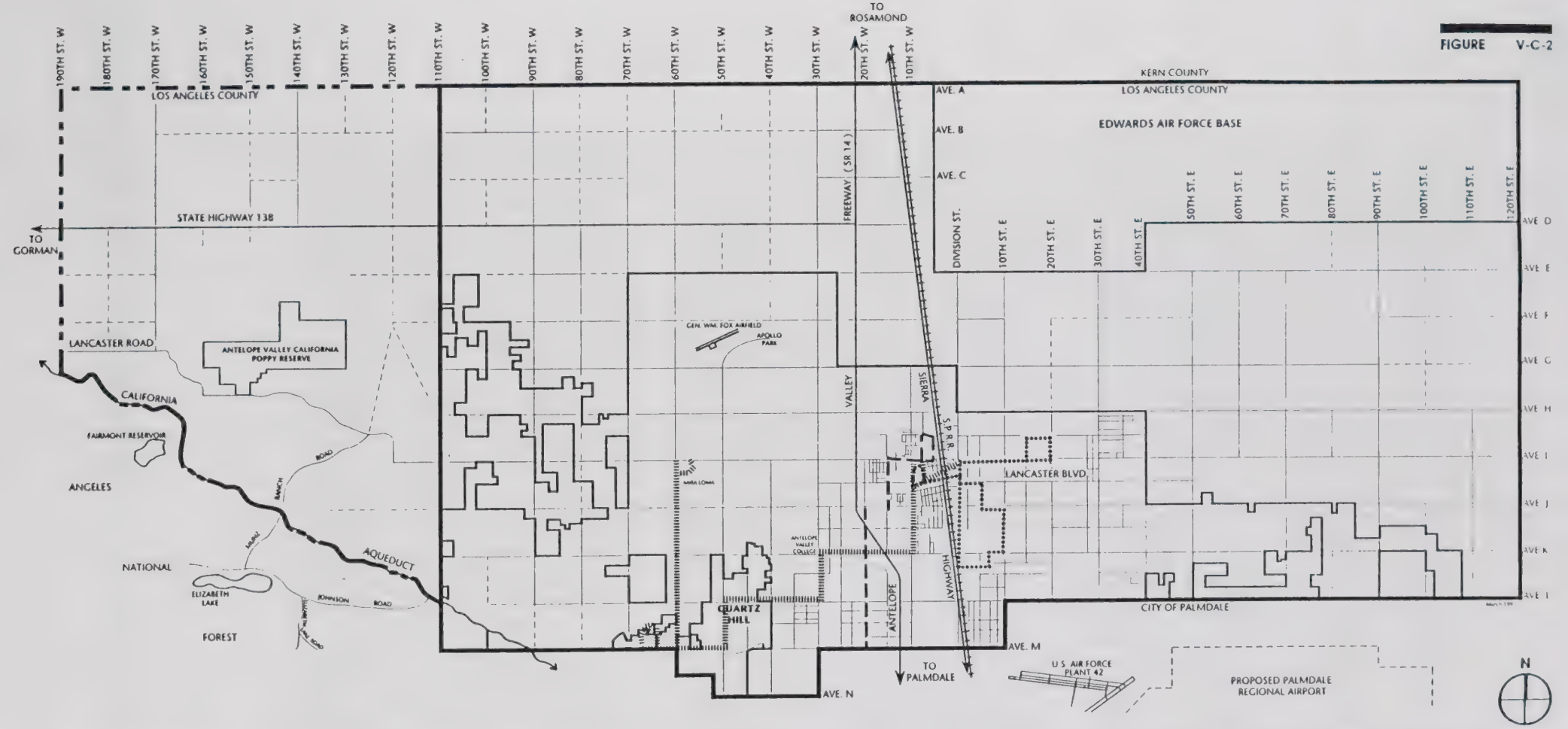
PLANNING NETWORK

CITY OF LANCASTER
GENERAL PLAN

★ TRANSIT DESTINATIONS

SOURCE: Antelope Valley Transit Commuter Destinations, 1990 Schedules. Thomas Brothers Southern California Arterial Map, 1989.

FIGURE V-C-2



TRANSIT ROUTES

PLANNING NETWORK

- ROUTE-1
- ROUTE-2
- ROUTE-3

SOURCE: PLANNING NETWORK, 1991.

CITY OF LANCASTER
GENERAL PLAN

The Antelope Valley Airport Express offers a reservation-only scheduled van between the Antelope Valley and Los Angeles International Airport, as well as service to local airports.

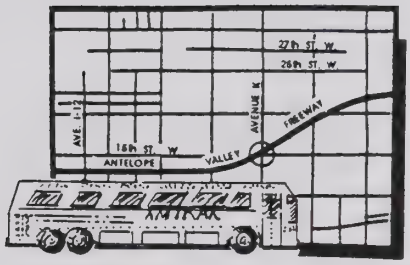
A new commuter bus service from the Antelope Valley to downtown Los Angeles and the San Fernando Valley has been approved by the Los Angeles County Board of Supervisors and became operational in February 1990. The City of Lancaster will fund 40 percent of this service.

The Commuter Computer rideshare and vanpool matching service is a private, non-profit ridesharing organization. Commuter Computer is funded cooperatively by Caltrans, the Southern California Association of Governments (SCAG), San Bernardino Associated Governments, Ventura County Association of Governments, and the Transportation Commissions of Los Angeles, Orange, and Riverside Counties. Important contributions are also made by the Cities of Los Angeles, and Lancaster, and by the more than 1,000 companies which utilize Commuter Computer's services. The City of Lancaster also participates in other programs with Commuter Computer and assists in funding.

In 1991, there were eight vans to serve local vanpoolers travelling south to communities in the San Fernando Valley and Los Angeles. Each van seats 12 to 15 passengers. Commuter Computer refers companies and individuals to third-party vendors with whom they arrange their own leases. In addition, the Cities of Lancaster, Palmdale, and Santa Clarita, the County of Los Angeles, and the Los Angeles County Transportation Commission (LACTC) sponsor a vanpool/buspool rider rebate program to encourage ridership. This program provides rebates for rider and childcare costs, as well as a guaranteed ride home program. Companies are provided with low-interest loans to purchase equipment and are paid 70 percent of the operating costs.

Senior and para-transit service in Lancaster is provided by four non-profit organizations with county and/or state funding and two private companies. These companies include: Antelope Valley Committee on Aging (Public); Los Angeles County Community and Senior Citizen Services Department (Public); North Los Angeles County Regional Center (Public); Independent Senior Center (Public); Mediride (Private); Antelope Valley Taxi (Private).

In 1989, there were plans for a bullet train route from Las Vegas to Southern California. This train would be a high-speed magnetic levitation train, capable of traveling at speeds up to 250 miles per hour. The "MagLev" system is currently being tested in Japan and West Germany, but is not in commercial use anywhere. Cost estimates range from $2.5 to $4 billion. The train would allow Los Angeles residents a one hour trip to Las Vegas for a round-trip fare of $65.00. Some saw this train as the first link in a possible network of super-speed trains connecting the greater Los Angeles area with San Francisco, Sacramento, San Diego, Palm Springs, and Phoenix. The Los Angeles Department of Airports, Antelope Valley Board of Trade, and local groups hoped the train would begin in the San Fernando Valley and stop in Palmdale. One of the main reasons behind Palmdale's terminal was to encourage the development of Palmdale Regional Airport and to lessen congestion on surrounding highways. The bullet train was lost to Anaheim due to higher passenger projections in Orange County. A possible spur line to Palmdale is still being discussed. In October 1991, Governor Wilson voted the extension of the committee working on this project.



Lancaster Amtrak Bus Stop

ANTELOPE VALLEY BUS-TO-TRAIN LINKS

PLANNING NETWORK

CITY OF LANCASTER
GENERAL PLAN

Existing Amtrak Routes

Amtrak Bus Connections

New Amtrak Spur

SOURCE: Antelope Valley Press, 1990.

The concept of a high speed rail system linking Los Angeles International Airport (LAX) with the airport in Palmdale continues to be discussed. A consortium submitted a proposal to build a high speed rail system linking Los Angeles International Airport (LAX) and Palmdale. LACTC is administering the project under a bill by Assemblyman William Baker, (R-Danville), calling for private firms to provide engineering, financing, construction, and management to build and operate State transportation improvements at a profit. The ownership of the facilities would be transferred to the state when construction is completed. The Baker bill (AB-680) authorized four demonstration projects throughout the state, requiring at least one in Southern California. The proposed line from Palmdale to the San Fernando Valley was rejected in favor of toll roads. However, in March 1991, a bill was passed that will add two additional projects to AB-680. The vice-president of one private development company said the first part of the train route, a 37-mile stretch from Los Angeles International Airport to Santa Clarita, would cost $1 billion and be completed by 1996-1997. The second part, 32 miles from Santa Clarita to Palmdale Regional Airport would cost $1 billion with no timetable. This section could begin construction soon after construction of the first portion. The rail line would use the Antelope Valley, San Diego, and Golden State freeway rights-of-way.

2. ANALYSIS

a. Identification of Regional Transit Needs

This section identifies the regional transit needs of Lancaster's residents, workers, and special user groups, such as the elderly and handicapped.

As indicated in the Community Issues Report, it is generally recognized that traffic and congestion problems in the City and on the Antelope Valley Freeway will probably get worse before they improve. Consequently, residents recognize the need for better alternative modes of transportation, including bikeways, equestrian trails, hiking trails, pedestrian trails, and public transit. This section specifically describes public transit needs. When considering that most employment opportunities exist outside of Lancaster, there is a need for an efficient and effective public transit system on both local and regional levels.

On the local level, the Antelope Valley Bus Service operates only three fixed routes within the City, operating on two-hour headways. The Los Angeles County Transportation Commission conducted a public transit needs study in the Antelope Valley in June 1991, which documents a need to increase service and create new routes. Local citizens and public officials generally support an increase in public transit service, but recognize the difficulties in trying to serve their sprawling and fast-growing communities. As part of the study, five focus groups were conducted, consisting of seniors, physically disabled, rural residents, transit non-users, and regular riders. Suggestions for improved service most frequently included extended hours, in the evening and weekends, additional service, and more efficient routes. Nearly those surveyed thought that a fare increase would be acceptable, but only if better local bus service was provided. The primary issue cited was a lack of convenience. An interim increase in local bus service, which provides more direct connections between the cities of Lancaster and Palmdale on half-hour headways, would meet many of the concerns expressed by local residents and by staff members from the County and cities.

Finally, for public transit to be considered a viable alternate to the private automobile mode, the City must resolve two major underlying problems. First, the large physical size of the City makes it difficult to locate stops which are convenient to future riders. Secondly, there is a lack of development density to support increased public transit. To resolve these problems, the City will need to strategically locate bus stops at convenient areas based on demands, provide additional park and ride facilities, and aggressively promote public transit in the City.

Regionally, there is a need to also increase the number of buses which transport commuters to destinations outside of Lancaster. For example, Greyhound Lines only provide a total of two trips per day in each direction. Because of the infrequency of buses, the ridership on these buses is extremely low. However, based on opinions expressed in the Community Issues Report, ridership would undoubtedly increase if commuter transit companies increase their respective services to Lancaster. The primary problem relates to the number of stops in Lancaster; the destinations to areas outside of Lancaster appear acceptable to residents and do not pose a problem. Funding of costs associated with increasing ridership is also a problem.

Regarding the transit needs of the elderly and handicapped, it appears that the level of current services provided by public and private agencies are adequate for the residents of Lancaster based on the opinion of the Los Angeles County Community and Senior Citizen Services Department. Representatives of that Department indicate that letters of complaints are seldom received, which indicate that service is adequate. In addition, interviews of riders and the transit needs study also indicate adequacy of service. However, a recent transit study indicates that there are problems in management of this service and that it does not meet requirements.

As the City grows in population and area, the service areas and routes of affected public transit companies will need to increase proportionally. Land use implications of providing increased transit service include increased land acquisition for park and ride facilities, possible traffic congestion along bus routes, the creation of areas of more intensified land use to support bus use, and improvement of roadway segments to accommodate cumulative traffic created by buses and automobiles. As a result, the City must make available to affected companies, City plans for future growth, while periodically interfacing with these companies on the status of projected growth. The City may also consider supporting rail construction to connect Los Angeles and Lancaster.

b. Need for New Transportation Terminals

As discussed in the preceding section, there is a need to provide service to new areas and to increase the number of routes to accommodate present and future transit riders. There is also a need for additional transportation transfer points and stops to allow more convenience for riders. Discussions with the Los Angeles County Transportation Commission indicate that while it is recognized that additional transfer points and routes, and expanded service areas are needed, extensive plans have yet to be formulated by these agencies or any other agency/company. It is unknown how extensions or addition routes would be established or where future stops would be located.

There are no plans to expand regional commuter buses, such as Greyhound Lines or para-transit services for the elderly and handicapped, or to establish new terminals within the City of Lancaster.

c. Need for Park and Ride Facilities

If the City is to encourage the use of public transit, additional parking stalls and terminals for park and ride facilities must be encouraged. The location of additional facilities are needed primarily within or near areas where ridership originates.

Recently over 670 new park and ride spaces were constructed which doubled the number of park and ride spaces. The largest new lot is located on 10th Street West at Avenue K-8, adjacent to Lancaster City Park. This lot opened in June 1991, and provides an additional 601 spaces. A new downtown lot opened in May 1991. The 71-space lot is south of the Lancaster Performing Arts Center on Lancaster Boulevard and Fern Avenue. During the day, it will serve carpool users, and also accommodate evening theater parking.

Other lots that are currently open include 118 spaces at Avenue K and SR-14; 200 spaces at East Side Park, Avenue I and 5th Street East; and 228 existing spaces at Lancaster City Park.

Park and ride facilities could be jointly funded by Los Angeles County, the City of Lancaster, and Caltrans. As an option, the City may be able to acquire land needed for facilities through dedications; the County and Caltrans would then share the costs by developing and constructing the facilities. In the past, the City has used Proposition A funds and California Department of Transportation grants to pay for construction of the lots.

The City, in conjunction with the City of Palmdale and the County of Los Angeles, may want to focus possible future locations for new facilities on the alignments along SR-14, and Avenue D. SR-14 is an existing freeway and provides direct regional transport to areas outside the City. Avenue D (SR-138) is a major arterial that may be improved to provide direct regional transport.

If the opinions expressed by residents are any indication, it is likely that any future proposal for expanding existing or constructing new park and ride facilities will be strongly supported.

D. COMMODITY MOVEMENT

1. EXISTING SETTING

a. Existing and Proposed Rail Facilities

Southern Pacific Railroad traverses through the City in the north-south direction adjacent to Sierra Highway. This route is part of the main route, which carries goods and commodities between Canada and Mexico; no passengers are transported. Currently, the route is at-grade through the City, with no grade separations. Approximately twenty trains travel through the City every day. At least one train can be expected during both the morning and evening peak hours, although, in peak season, residents have indicated upwards of sixty trains per day can be expected. The trains average one to two miles in length and make no scheduled stops in either Lancaster or Palmdale. Automobiles travelling in the east/west direction typically must wait up to six minutes for the train to pass. The trains can reach speeds of 70 miles per hour, though average speeds are 45 mph. Trains will slow to 35 mph if they travel into the Cajon Pass.

Southern Pacific Railroad presently has no plans for expanding or reducing its operation. Representatives of the railroad, however, did state that pressure is being created by transit agencies for Southern Pacific Railroad to build a rail transit facility. A possible location, which has been discussed, would be in Palmdale, with routes connecting Littlerock and the Cajon Pass.

b. Existing Truck Routes

The City of Lancaster presently does not formally designate any of its roadways as truck routes. City Staff indicated, however, that many of the City's major arterials, particularly SR-138, can accommodate heavy truck traffic.

c. Major Pipelines and Energy Transmission Facilities

Southern California Edison and Southern California Gas Company provide electricity and gas to Lancaster. Local electrical substations (66 kiloVolt or kV) are located near the following intersections:

Avenue E and 90 Street East,

Avenue J and 90th Street East (Piute Substation),

40th Street East and Avenue M (Toutise Substation),

20th Street East and Avenue M (Oasis Substation),

Avenue I and 10th Street West (Lancaster Substation),

Avenue M and 20th Street West (Shuttle Substation),

Avenue L and 60th Street West (Quartz Hill Substation),

Avenue H and 90th Street West (Del Sur Substation).

A regional Edison 220kV substation is located near Avenue J and 100th Street West. There are two regional 220kV and one 500kV line running along the California Aqueduct. The remaining distribution lines in the City are 66kV (see Figure V-D-1). The 220kV and 500kV lines are located on a right-of-way which varies in width from 330 feet to 505 feet. The easement is partially owned in fee by Southern California Edison, while other portions are owned by property owners. There are approximately 150 miles of major electrical lines within the City.

The Southern California Gas Company has an 8-inch supply line along Division Street and a 10-inch supply line along Avenue H. Other pipes are also located in the western portion of the City (see Figure V-D-1).

At this time, neither Southern California Edison Company, nor Southern California Gas Company have any plans to expand their respective service or facilities within Lancaster or the Antelope Valley region. The Edison Company anticipates that future development in the Lancaster and Palmdale areas would probably require at least five new 66kV source lines and rearrangement of existing 66kV lines within the next five to seven years.

2. ANALYSIS

a. Traffic Conflicts with Railroad Crossings

As discussed in previous sections, Southern Pacific Railroad bisects the City in the north/south direction along Sierra Highway. Given that Southern Pacific Railroad has no plans to either reroute or reduce their service, the City must consider crossing improvements or construction of grade separations.

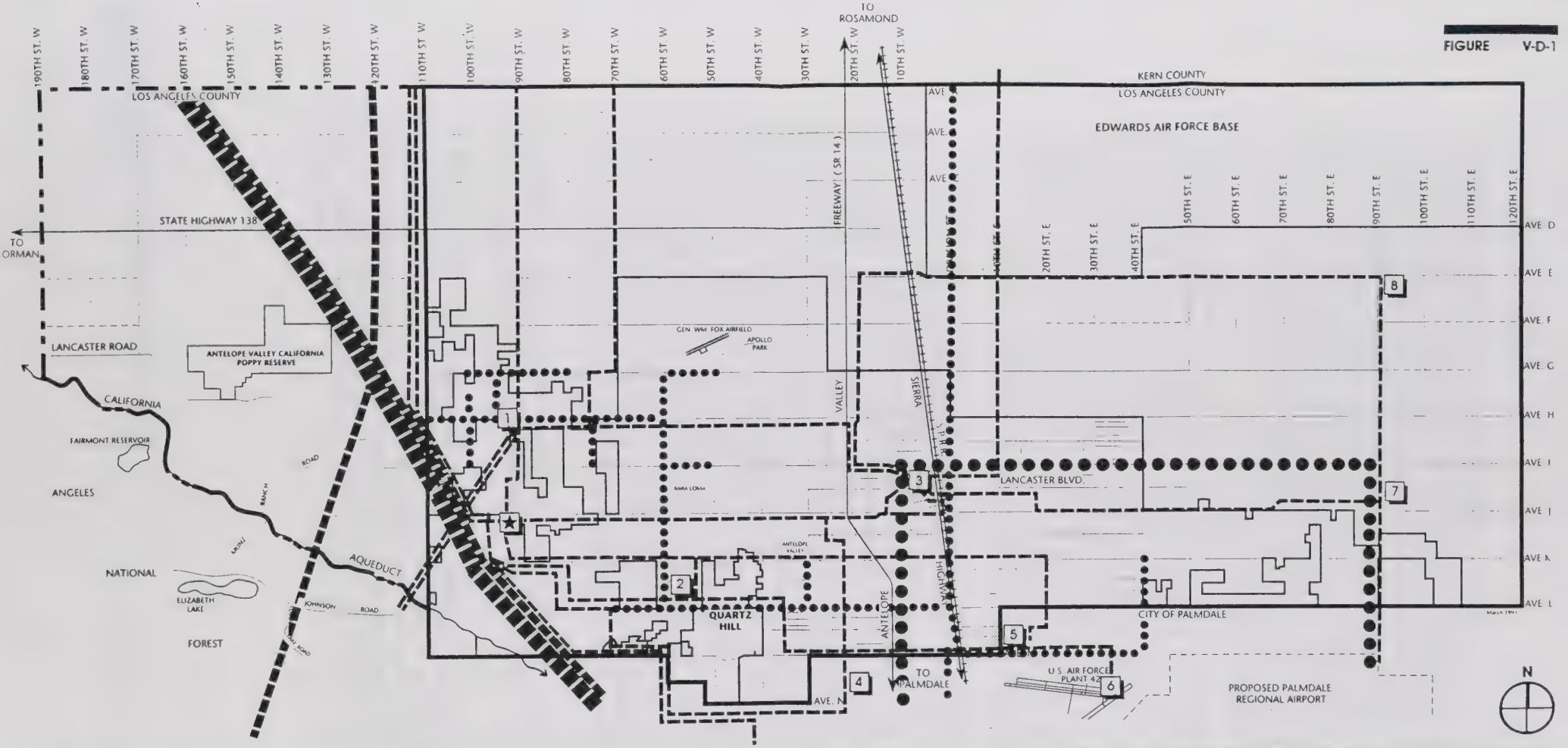
Discussions with the City's Department of Public Works indicate that the City is planning to construct an overpass at Avenue L, to enable vehicles in the east/west direction to bypass the train crossing. The City is in the final design stage this overpass.

According to DKS Associates technical memorandums, those roadways which bisect the railroad tracks south of Avenue G have the highest existing and projected traffic volume. In discussing this matter with the City's traffic consultant, DKS indicated that, in the future, six (6) grade separation crossings would be required to fully mitigate traffic conflicts with the railroad. They also indicated that the priority crossings would be Avenues L, K, and J. In addition, they also recommended that Avenues H, I, and M also be considered as priority crossings. Most of the City's traffic travels along these six avenues in the east/west direction. The City may want to continue evaluating the feasibility of constructing grade separated crossings at the intersections.

b. Implications and Feasibility of Extending Rail Service to Industrial Areas

Presently, the industrial core of the City is generally located along the railroad right-of-way and in an area bordered by Challenger Way and Antelope Valley Freeway, south of Avenue L. The existing Southern Pacific Railroad bisects the City and industrial core in the north/south direction along Sierra Highway. The railroad, however, does not have scheduled stops within the City. There are spurs, and some businesses receive rail service on an as-needed basis in the area between Avenue J and K. This section discusses the implications of extending full rail service to the City's industrial areas.

FIGURE V-D-1



LOCATION OF ENERGY FACILITIES

PLANNING NETWORK

ELECTRIC TRANSMISSION LINES
- 500 kv (REGIONAL)
- 220 kv (REGIONAL)
- 66 kv (LOCAL)

NATURAL GAS SUPPLY LINES
- TEN INCH
- EIGHT INCH

ANTELOPE VALLEY REGIONAL SUBSTATION (220kv)

LOCAL SUBSTATIONS (66kv)

1.	Del Sur	5.	Oasis
2.	Quartz Hill	6.	Tortoise
3.	Lancaster	7.	Piute
4.	Shuttle	8.	Redman

SOURCE: Southern California Edison and Southern California Gas Company Records, 1990.

CITY OF LANCASTER
GENERAL PLAN

CITY of LANCASTER, CALIFORNIA INCORPORATED NOV. 22, 1977

City decision makers believe that expanded rail service will encourage industrial development. They believe, given that the City is not presently served by any scheduled railroad service, there is a need for future rail service expansion. Currently, manufacturing activities are found in the industrial core. These types of activities require efficient material and commodity transport, which can be provided by rail. When considering the future growth and development projected for the City, the need for future rail service is increased. More efficient transportation of materials and commodities translates to more efficient and productive industrial and manufacturing operations, thus resulting in greater profitability for these industries. Ultimately, new industries and other employment opportunities would be attracted to the City due to these financial benefits.

Expansion of rail service may include scheduling railroad stops within the City or developing additional spurs from the existing railroad line. Scheduling stops within the City along the existing alignment would require several improvements. Terminals and other structures and facilities would be required to service drops and pick up of commodities. In addition, land would need to be acquired to construct improvements. Scheduled stops may significantly disrupt east-west traffic movement on major streets. The costs associated with such improvements may render this alternative infeasible. To achieve additional raid service, the City must interface with Southern Pacific Railroad to determine costs and responsibilities for incurring the financial burden of providing improvements.

The development of spurs extending from the existing railroad is another alternative for expanding additional rail service. With this alternative, specific existing and future industrial areas, including Fox Field, could be afforded rail service. However, there are general impacts which must be considered. Development of railroad spurs require the acquisition of land for track right-of-way and construction of terminals and structures for pick-up and drop off of materials. There will also be extensive environmental-related impacts. Regardless of where the spur(s) would be developed, it can be anticipated that there would be some generation of dust and emission pollutants, increased noise, negative aesthetic impacts, and disruption of existing circulation patterns. In addition, railroad and trains may be perceived as offensive by some persons. Finally, there is a possibility that hazardous materials may be transported from aerospace and military installations. Consequently, risks may be created by the potential for spills and explosions. While it is anticipated that rail spurs would not be constructed in highly populated areas, hazards would still be extended to workers and other persons found along the spur alignment. While these environmental factors appear extensive, it should be noted that many of these impacts can be mitigated to a level of insignificance.

A possible rail spur could be developed along Avenue G to the west. This alignment traverses through the proposed industrial core and runs along the southern boundary of Fox Airfield.

To develop feasible future rail spurs, the City must find a balance between the aforementioned environmental impacts and the obvious economic benefits. Given that expanding employment opportunities and industries within the City are considered high priority, the City may want to encourage the extension of rail services. The City must interface with Southern Pacific Railroad to determine costs, funding responsibilities, and action plans for providing increased rail service to the City.

c. Evaluation of Potential Truck Routes

There are presently no truck routes designated within the City. City Staff indicates that trucks typically travel on major arterials and freeways, presenting no real problem at this time. However, with projected future development of industries and employment opportunities, and increased traffic volumes, truck routes must be designated for specified alignments to ensure that congestion created by trucks will be controlled to the greatest extent feasible.

Truck routes should be established to provide efficient access to industrial and major employment areas, while not increasing traffic congestion. These routes must have adequate rights-of-way to accommodate trucks, but minimizing the use of these routes by other motor vehicles. It is also ideal to locate truck routes away from highly populated residential areas.

Possible alignments which may be considered for future truck route designation include Avenues D, H, and L in the east/west directions, and 60th Street West and 50th Street East in the north/south directions.

Each of these alignments traverse through the industrial area and would provide direct access to major industrial areas. For example, Avenue L and 50th Street East provide access to Edwards Air Force Base and Plant 42. Avenue D and also provides access to Edwards and is already heavily utilized by trucks; Avenue G and 50th Street West both provide access to the Fox Field area.

Each of these alignments are also designated as major arterials which represent the major carrying capacity for traffic to and within the City. Current design standards for major arterials are paved sections of 84 feet within 100-foot rights-of-way, which when built to full carrying capacity, provides for either three lanes for through traffic in each direction and a median for left-turns, or two lanes in each direction, a left-turn median lane, and a curb lane for parking. In 1989, segments along these alignments except for Avenue I, between SR-14 and Sierra Highway, and portions of Avenue L, are currently operating at LOS C or better, which indicates that traffic volumes are moderate and congestion is minimal.

d. Location of Major Utility Lines on Community Aesthetics and Cohesiveness

As indicated in the Community Issues Report, many of the City residents desire a rural, uncluttered environment for Lancaster. Therefore, any structure located above grade is considered a negative feature or element of the City. This section, therefore, focuses on utility lines located at or above grade. Gas lines are located underground and will not require discussion. As discussed previously, Southern California Edison has several existing substations and electric lines throughout the City. Most of these facilities are located along the periphery of the City. Therefore, views of natural features to the southwest will be disturbed by those lines which are located along the California Aqueduct. City views of the east and south will also be disturbed by substation structures and electrical lines. Development of future Edison lines must account for those views of scenic resources which may be disturbed. The City may want to address ways to discourage haphazard placement of lines.

Many of the major Edison lines, specifically the 220kV and 500kV lines, are located on rights-of-way owned in fee by Southern California Edison. These rights-of-way may potentially adversely affect the cohesiveness of larger future land uses, since land ownership would be divided. For example, should an electrical easement bisect a large-scale development, buffers would need to be provided to screen proposed uses from the easement. This may limit the type of uses to be provided and therefore, affect the overall design of the proposal. In addition, since only passive open space is typically permitted within the easements, future developers of projects must ensure compatibility between proposed uses and those uses which are permitted within the easements. The City may not want to encourage the placement of Edison easements on future large-scale developments.

E. AIR TRANSPORTATION

1. EXISTING SETTING

There are two aviation facilities located in and around the City of Lancaster, the Palmdale Regional Airport and the General William J. Fox Airfield.

The Palmdale Regional Airport is located on 54 acres leased from Air Force Plant 42. The present 25 year joint use agreement allows the Palmdale Airport to use the two existing Plant 42 runways. Skywest Airlines presently provides shuttle passenger service between the Palmdale facility and Los Angeles International Airport. According to the Accounting/Statistics Section of the Los Angeles Department of Airports (DOA), no air freight data is available for Palmdale prior to 1990. During the first six months of operations in 1990, approximately 7,219 pounds (3.2 tons) of air freight were handled through the Palmdale Airport, as shown in Table V-E-1 (DOA 1990). If freight volumes continue to increase at their present rate, as much as 10 tons of air freight may be handled by Palmdale through the end of 1990. At present, over 70 percent of the air freight is outgoing (departures). In contrast, larger, more active airports usually have more balanced distribution of air freight activities (51 percent departures for Los Angeles International Airport and 56 percent departures for Ontario International Airport).

From January through December 1990, 45,568 domestic passengers passed through Palmdale Regional Airport. The airport is projected to have one million passengers annually by the year 2000, four million passengers per year and 200 operations per day by 2015. Total operations may be raised to eight million passengers per year and 400 operations per day by mutual consent of the Los Angeles Department of Airports and Plant 42, but there is no established time frame for this increase (Los Angeles Department of Airports, Facilities Planning Division, 1991.)

In addition, the Los Angeles Department of Airports also owns 17,500 acres east of the airport which may eventually support the construction of a Palmdale International Airport. However, this issue has been debated and when or if this will someday become feasible is currently not known.

The other commercial civilian facility is the General William J. Fox Airfield, also known as Fox Field. It is located within the Lancaster city limits, approximately four miles northwest of downtown Lancaster. Primarily for private plane use, the airport encompasses approximately 1,120 acres and is bounded by Avenue F to the north, Avenue G to the south, Apollo Park to the east, and 60th Street West to the west. Principal facilities at the airport consist of a passenger terminal, fixed base operation, and the U.S. Forest Service Air Tanker Base. Although the airfield land is owned and operated by Los Angeles County, approximately half of the buildings on-site are owned by private firms that utilize the airport (Abing, 1990). Land surrounding Fox Field is currently designated for industrial development. Future expansion of industrial uses will likely increase the use of the airfield.

Table V-E-1
Palmdale Regional Airport Operations

Operations	June 1990	January-June 1990
Domestic Passengers	3,824	16,581
Air Freight		
Departures	1,864	5,105
Arrivals	754	2,114
Total Air Freight	2,618	7,219
Total Operations	6,442	23,800

Source: Los Angeles Department of Airports (DOA), "Air Traffic Statistics," 1990.

2. ANALYSIS

a. Economic Impacts

The impacts of these two commercial airports on the region will be a function of their size. In general, as passenger and cargo traffic volumes increase at these two facilities, the economic impacts to the surrounding areas, including Lancaster, will also increase. There are three types of airport impacts:

- Direct
- Indirect
- Induced

These three impacts are defined as follows:

- *Direct Impacts* Direct impacts comprise those financial transactions that are of economic value to the region and that occur due to the provision of air passenger and air cargo services. Typically, these impacts occur at the airport and include regional expenditures such as those made by the airlines, airport tenants, air cargo firms, ground transport, and others.

- *Indirect Impacts* Indirect impacts comprise those financial transactions that are of economic value to the region and that occur due to the use that is made of an airport. Typically, these impacts include expenditures in the region by visitors to the region that arrive by air, expenditures by air crews, air freight users, travel agents, and others. Indirect impacts typically occur at off-airport locations.

- *Induced Impacts* Induced impacts are the "multiplier" implications associated with the direct and indirect impacts. These impacts are used to trace money as it flows through a regional economy. For example, a portion of an airline employee's salary pays for groceries. The grocer then pays his employees, the delivery truck operator, and other associated people and businesses.

In all cases, the economic value of the gross financial transactions is the "value added" component wherein the money of economic value to the region is received by someone or some entity located in a defined region. Impacts do not include money which immediately flows to locations outside the region, such as Federal taxes, the cost of an aircraft, or the cost of fuel brought into the region (see Figure V-E-1).

The most important benefit associated with these airports is the employment they provide for local residents, both now and in the future. While some of these jobs are located at the airport, the majority of jobs are caused by visitor expenditures and induced economic activities spread throughout the region. For example, over 40,000 regional jobs were attributed to the Ontario International Airport in 1986. Of these, 5,915 jobs were directly related to the airport environs, while the remaining 34,620 jobs were indirect or induced jobs at locations throughout the region.[1] This information is based on approximately half a million passengers and almost 13,000 aircraft movements per year (DOA 1990).

Another important factor to consider is the economic "multiplier" effect airports create, which would significantly increase the demand for specific local goods and services in the Lancaster area. Each time money is exchanged locally, many local people and businesses benefit, even though they may not use or directly serve the airport. By tracing the flow of monies through the regional economy, one can estimate which industry types are benefitted. While many industries benefit, the principal industries that benefit greatest from an airport are transportation, real estate, retail trade, insurance, and business services. Other local industries that can indirectly benefit from airports are apparel, machinery, utilities, and health services. These impacts ultimately influence the future growth and change within a region.

As the Palmdale and Fox Field facilities and operations expand, so too will the demand for airport-related services, employees, and goods suppliers. To accommodate this, the City is proposing to set aside an appropriate amount of land, in appropriate locations, to adequately support eventual expansion of these two air transport facilities.

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1 Source: Wilbur Smith Associates, "The Economic Impact of Ontario International Airport," 1988.

b. Palmdale Regional Airport

There are two avenues for development of Palmdale Regional Airport. According the Los Angeles Department of Airports, Palmdale Regional Airport will remain a regional airport well into the 21st Century. Estimates of eight million annual passengers are proposed for the existing site, using the two Plant 42 runways. In order to prepare for this future growth and to provide a balanced transportation system for the safe and efficient movement of people, goods, and services within and between Palmdale and Lancaster, the Palmdale General Plan Citizen's Advisory Committee has addressed the following measures to lessen the implications on future growth and change for both cities:

Construct a major dedicated access route to the airport from SR-14;

Provide adequate access routes separate from local streets;

Reserve approximately 300 feet of right-of-way on the proposed east/west expressway facility that accesses the airport, so that as air-flight activity increases, sufficient width is available to widen these roadways as necessary.

There is the possibility that Palmdale Regional Airport will become an international airport, which has been discussed for several decades. This would entail additional runways and development on the 17,500 acres of land currently owned by the Los Angeles Department of Airports adjacent to Plant 42. When, or if, this expansion will occur is currently not known.

c. Fox Field

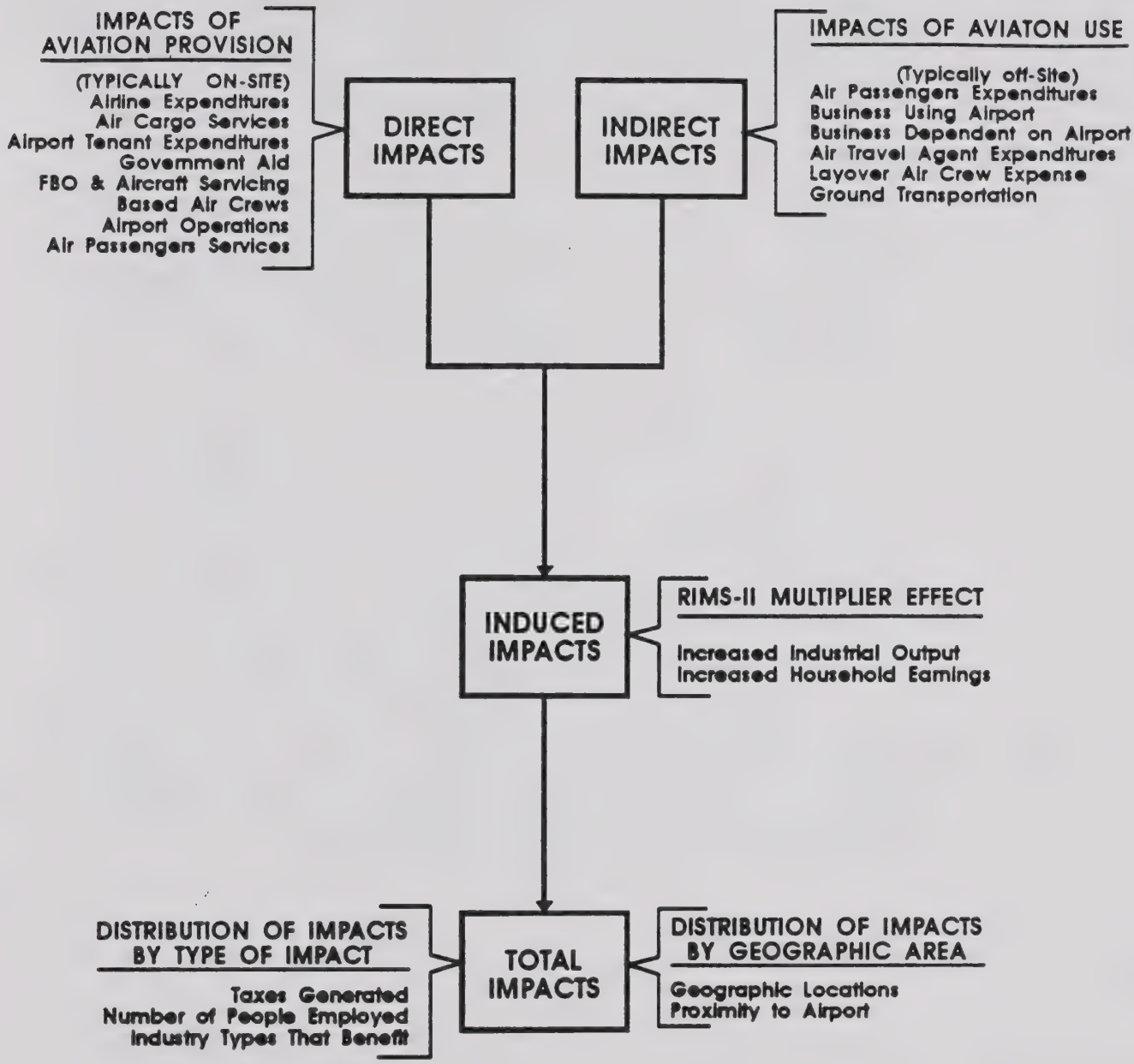
Fox Field, being the only general aviation airport in the area, offers a unique opportunity to attract commercial and industrial clients. The airport, and its convenient proximity to the Antelope Valley Freeway, provides an important transportation link to the labor market of the San Fernando Valley. Currently, the airport offers no passenger service. In the future, however, an easy commute via bus, auto, high speed rail, or aircraft could influence business people to use Fox Field to a greater extent.

The aviation activity forecast for Fox Field, developed by the California Aviation System Plan, indicates that the number of based aircraft may increase from 570 in 1988 to 1,400 by the year 2003. In order to alleviate the implications associated with this anticipated growth, the following measures have been recommended:

To adequately accommodate the projected growth in passenger demands, the existing on-site terminal building will have to be expanded;

The existing runway length and strength must be improved to adequately meet the needs of the larger aircraft utilizing Fox Field:

A number of street and roadway improvements will be required to meet the forecasted activity loads at the airport. However, no future roadway capacity shortfalls are projected.



AIRPORT ECONOMIC IMPACT TYPES

PLANNING NETWORK

CITY OF LANCASTER
GENERAL PLAN

SOURCE: Wilbur Smith Associates "The Economic Impact of Ontario International Airport," 1988.

d. Implications of Airport Land Use Commission Law (Public Utilities Code Section 21670 et seq.)

Under the California Airport Land Use Commission Law, each county with a public use airport served by a certified air carrier has an agency called an Airport Land Use Commission (ALUC). The primary duty of these commissions is to formulate a comprehensive land use plan to provide for the orderly growth of each public airport and to safeguard the general welfare of the inhabitants within the vicinity of the airport, along with the public in general.

The law specifically provides that formation and specific membership requirements of an ALUC do not apply to counties of more than four million population (i.e. Los Angeles County). In any such county, the regional planning commission has the responsibility of coordinating the airport planning of public agencies within the county. Therefore, the Law, generally, allows the City of Lancaster input into, but not total control of, the land uses surrounding Palmdale Regional Airport. It should be noted that the only other civilian airport in the regional area, Fox Field, previously adopted its own land use plan.

ALUCs were created under State law enacted in 1967. The ALUC statues have been amended several times in the intervening years. However, Los Angeles County has always been exempted from state requirements to create an ALUC. The most recent amendments to the Airport Land Use Commission Law were effected by the adoption of Senate Bills 255 and 1288. Senate Bill 255, which became effective January 1, 1990, imposes a June 30, 1991 deadline for ALUCs to adopt their airport land use plans. Since Los Angeles County does not have an ALUC, this deadline was extended to January 1, 1992 by Senate Bill 1288. Until the plans are adopted, cities and counties must secure the commission's approval of all nearby development projects. Senate Bill 255 authorizes ALUCs to establish a schedule of fees for reviewing and processing land use proposals. These fees cannot exceed the estimated reasonable cost of providing the service. Senate Bill 255 suspends lawsuits that would shut down development until the ALUC adopts its plan, or until January 1, 1992 for Los Angeles County. Upon expiration of the deadline, lawsuits can once again be filed challenging zoning and land use decisions concerning development around airports that do not have an adopted comprehensive land use plan. For more information, see The Plan For Public Health and Safety, Section III-D.

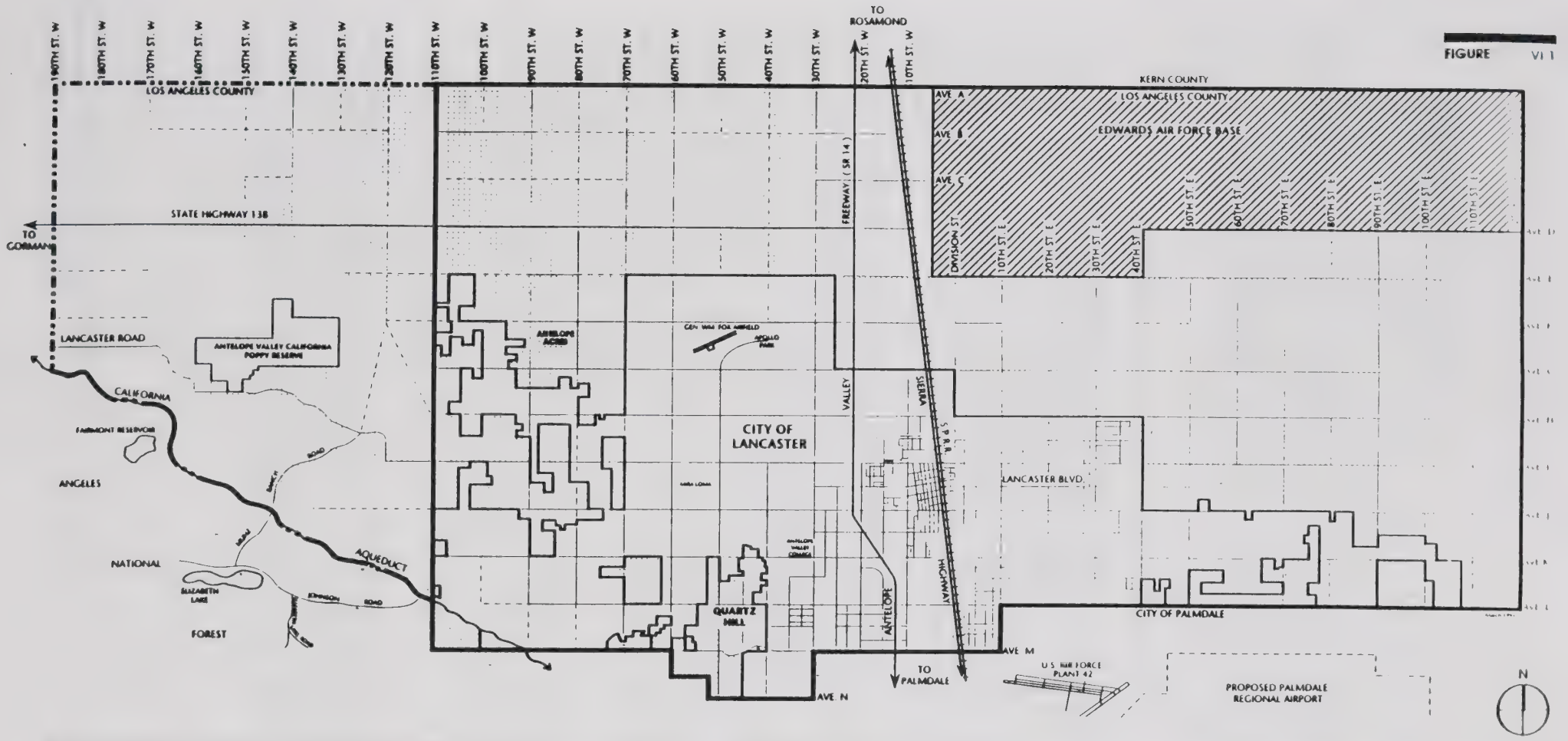
VI. STATE OF THE CITY REPORT
MUNICIPAL SERVICES AND FACILITIES

VI. MUNICIPAL SERVICES AND FACILITIES

INTRODUCTION

The Plan for Municipal Services and Facilities examines the basic infrastructure and services found in the Lancaster General Plan study area (see Figure VI-1). Many of the primary service providers, such as water, sewage treatment, and solid waste management are provided by private agencies. Present conditions are addressed in the study area, along with measures for improvement. Existing public services are also analyzed on their present condition, need for improvement, and planned and possible needs for future expansion.

FIGURE VI 1



PLANNING NETWORK

- CITY BOUNDARY
- INCORPORATED AREA
  As of October, 1990
- SPHERE OF INFLUENCE BOUNDARY
- EXPANDED STUDY AREA
- UNINCORPORATED
- EDWARDS AIR FORCE BASE

SOURCE: City of Lancaster Planning Department

AREA CONTEXT

CITY OF LANCASTER
GENERAL PLAN

A. WATER FACILITIES

1. EXISTING SETTING

This section provides data and analyzes the water treatment and delivery systems that serve the study area. The two sources of water for the area are local groundwater and State Project water imported from northern California via the California Aqueduct. State Project water and local groundwater meet state and federal drinking water standards and both are used for domestic storage and consumption with minimal treatment. For additional information on the quality, quantity, and availability of water, see Natural Environment, Water Resources Section II-A.

a. Antelope Valley-East Kern Water Agency (AVEK)

The primary source of imported water in the Antelope Valley is water purchased by AVEK from the State Water Project. State water is delivered to the area by the California Aqueduct, which runs along the southwest border of the study area. AVEK is a wholesale water distributor who sells and distributes water to local (retail) public and private water agencies, who in turn sell the water directly to consumers. This water district occupies a total of 2,383 square miles with approximately 42 percent (994 square miles) within Los Angeles County, approximately 40 percent (398 square miles) of which is within the Lancaster study area.

AVEK has a contract with the state to receive a specific entitlement of State Project water. As more of the State Water Project is completed, additional water supply may become available for sale. The Feasibility Study To Provide Water Service To Proposed Annexation Areas, completed for Lancaster in 1988, indicates that AVEK currently has an entitlement of just under 70,000 acre feet[1] per year (62 million gallons per day). Total entitlement is available 70 percent of the time, subject to cutbacks of up to 40 percent in years of drought. Full entitlement for AVEK, at the completion of the water project, will be 138,400 acre feet (123.5 million gallons per day). Of this, 46,000 acre feet were being used in 1990. Full entitlement is dependent on the following conditions: completion of the State Water Project, the amount of water available in the canal in any year, transmission capacity from the aqueduct to the AVEK treatment plants, and AVEK's distribution and treatment plant capacity.

The California State Department of Water Resources has discussed building a second aqueduct as part of the proposed Peripheral Canal project. If built, this facility would parallel the existing aqueduct and provide additional water from northern California. However, there are no pending plans or funds at present for this project, nor even to complete expansion of the existing State Water Project.

b. Regional Water Delivery

The Antelope Valley-East Kern Water Agency (AVEK) maintains a regional delivery system for imported State Project water in the Lancaster study area. Their system consists of three major feeder pipelines: west, south, and east (see Figure VI-A-1). The West Feeder transports untreated water from the eastern branch of the California Aqueduct. This buried conduit passes just west of the Fairmont/Antelope Buttes area, and varies in diameter from 48 to 60 inches near

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[1] One acre foot equals 325,800 gallons, and can cover one acre with water one foot deep.

the Poppy Preserve to 33 to 36 inches near Rosamond. It carries raw water to the Rosamond Water Treatment Plant and Pumping Station north of Lancaster. AVEK eventually plans to extend this line in two locations to serve future development in certain portions of the study area: 1) south along 60th Street West from the Rosamond area to serve the northern portions of the study area, and; 2) east along Avenue D (Highway 138) from 140th Street West to serve the western portions of the study area.

The South Feeder transports treated water from the Quartz Hill Water Treatment Plant through a series of 30 to 39 inch pipelines east to the southern portion of Lancaster. A small lateral line (the 60th Street West Lateral) comes off of the South Feeder near the treatment plant to serve the Quartz Hill Water Company and the other small water companies in this area. The northern portions of Palmdale are also served off of a 24 to inch lateral from the South Feeder.

The East Feeder delivers treated water from the Eastside Water Treatment Plant, located next to the Aqueduct near Pearblossom, to the areas immediately south of the eastern portions of the study area. AVEK plans to eventually extend this 16 to 27 inch feeder into the study area near 110th Street East.

c. Water Treatment/Supply

State water for most of the Antelope Valley is treated by the Antelope Valley-East Kern Water Agency (AVEK) at four water treatment plants: Quartz Hill, Rosamond, Tehachapi, and Eastside. The Quartz Hill Treatment Plant, located at 65th Street West and Avenue N, treats all of the imported water presently used in the Lancaster study area. This plant was recently expanded from a capacity of 28 million gallons per day (mgd) to 56 mgd.

AVEK also sends raw (untreated) water from its Tehachapi Plant to the Rosamond Plant north of Lancaster, which has a current capacity of 14 mgd. The Rosamond Plant will eventually provide a total of 28 mgd of treated water daily. Although at present, none of this water is used in the Lancaster study area, some portion of this water could be used in the future to support growth in the western portion of the study area. However, a pipeline to transfer water to Lancaster would need to be constructed, along with an adequate distribution system (City of Lancaster Engineer, 1990). Up until 1988 Kern County was using 8 mgd of water from this plant. As a result, plans were made to build a water line to tie into the Los Angeles County loop. The growth in Rosamond, however, now indicates that Rosamond is likely to use the entire 14 mgd and the expanded 28 mgd as well. Currently, although it has not been abandoned, there is much less optimism about the proposed expansion plan than was previously felt.

The District also plans to eventually extend a regional water main from its Eastside Water Treatment Plant. This plant is located between Pearblossom and Littlerock, southeast of Lancaster. It presently has a capacity of 10 mgd, but is planned to be expanded in the future to serve portions of the study area east of Lancaster (City of Lancaster Engineer, 1990).

Several of the proposed developments in the outlying portions of the study area are planning to build small treatment plants to provide water to these areas by blending AVEK water with imported water and/or treated well water.

d. Retail Water Agencies

In addition to the Antelope Valley-East Kern Water Agency (AVEK), which is a wholesale distributor of water, the City of Lancaster study area is served by the following twelve (12) retail water districts or mutual water companies:

- Los Angeles County Waterworks District No. 4 (WWD4)
- Quartz Hill Water District
- Palm Ranch Irrigation District
- Antelope Valley Water Company
- White Fence Farms Mutual Water Company
- Antelope Park Mutual Water Company
- Landale Mutual Water Company
- Averydale Mutual Water Company
- Green Grove Mutual Water Company
- Lancaster Water Company
- Sixteenth Street West Tract Water Company
- Fortieth Street Mutual Water Company

The boundaries of these water agencies are shown in Figure VI-A-2. The County Waterworks District No. 4 serves the majority of Lancaster. The Quartz Hill Water Company serves several large portions of southwest Lancaster, while four of the smaller agencies (Palm Ranch, Antelope Valley, White Fence, and Antelope Park) are situated in the Quartz Hill area and the surrounding area to the east. Most of these smaller companies are served by the South Feeder water line from AVEK. Two mutual water companies, Averydale and Green Grove, serve a few square miles of land northeast of downtown Lancaster around 30th Street East and Avenue I. The Landale Mutual Company serves a few square miles between the Antelope Valley Freeway and 10th Street East south of Avenue L, while the Lancaster and the Sixteenth Street West Tract water companies serve two small tract areas just east of State Route 14 between Avenue I and J. The rest of the study area is served by individual wells or water delivered by trucks. There is very little coordination between these agencies, as there are no common water lines. During emergencies, such as a line break, water agencies will assist one another, but it is difficult to coordinate between agencies due to different types of systems.

The major water purveyors within the study area are: the Antelope Valley-East Kern Water Agency (AVEK); the Los Angeles County Waterworks District No. 4; and the Quartz Hill Water District.

e. Waterworks District No. 4

Los Angeles County Waterworks District No. 4 (WWD4) is a County agency governed by the Board of Supervisors, and is responsible for providing water to its designated service area. It is the largest retail water purveyor in the region,

providing water service not only to Lancaster and the surrounding unincorporated areas, but also to Los Angeles County Waterworks District 34, which serves a portion of the City of Palmdale.

The WWD4 has two sources of water: groundwater from local wells, and imported State Project water through AVEK. Due to current drought conditions, WWD4 uses approximately 93 percent well water and only seven percent State water from the California Aqueduct. This compares to an average of 49 percent of well water during the year 1989-1990 (see Table VI-A-1).

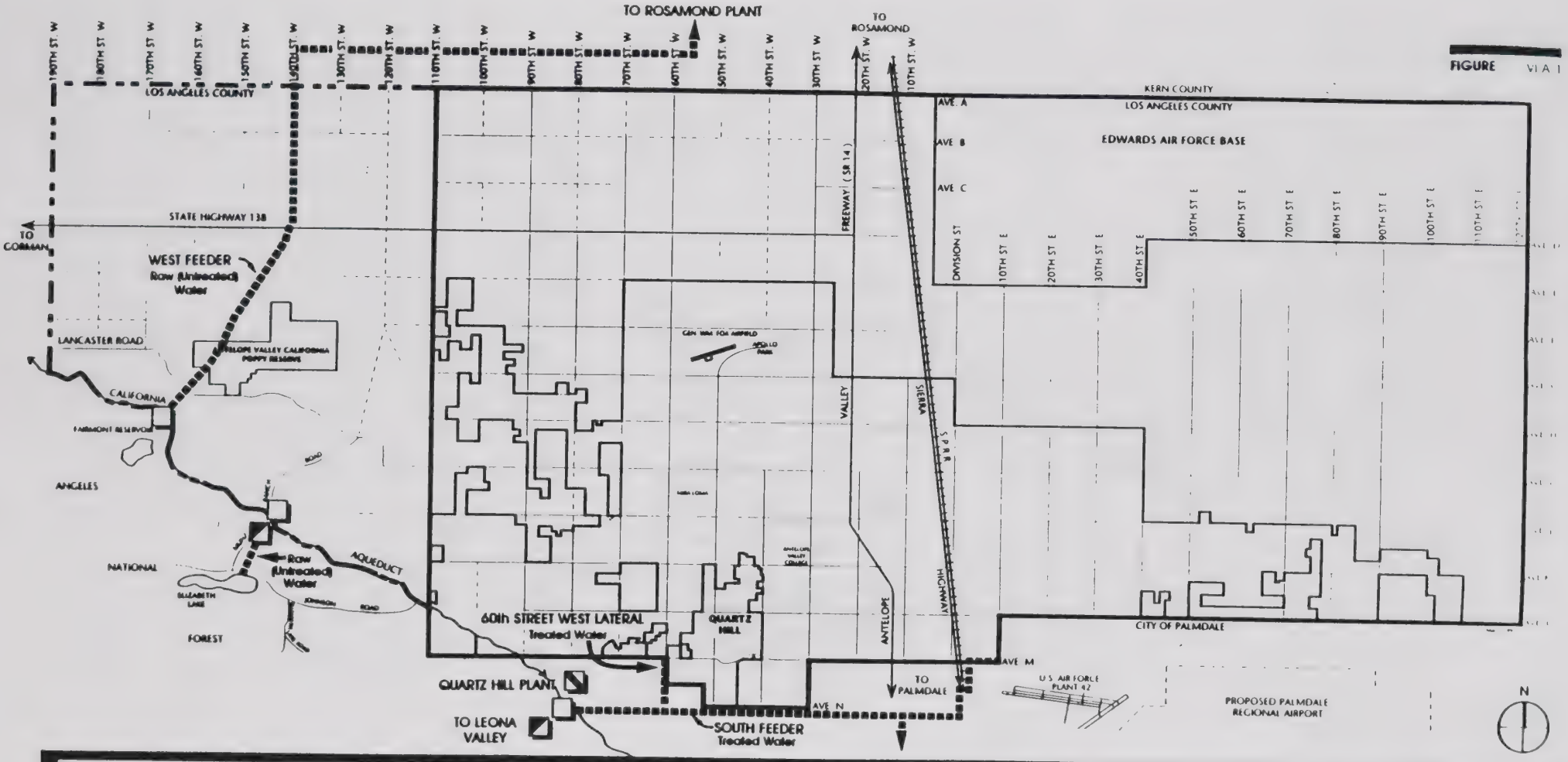
Groundwater is supplied from 35 wells with a combined capacity of 23 million gallons per day. Most of these wells (31) utilize water from the principal aquifer at a depth of 100 to 500 feet. Four active wells are deeper than 1,000 feet and tap both the principal and deep aquifers. The capacity of these deep wells is approximately 1,000 gallons per minute (gpm). In 1985, these wells supplied 8,645 acre-feet to local users, while usage in 1989 was almost 10,000 acre-feet. Historically, the District has drilled additional wells as needed to meet increased demands. It has recently established six new wells; however, their capacities have not yet been established. Well monitoring data indicates that groundwater levels in both the principal and deep aquifer are significantly lower than historical levels (see the Water Resources Section in Natural Environment, II-A).

Table VI-A-1
Water Supply Sources

Date	Well Water	State Aqueduct Water
July 1989	60%	40%
August	56%	44%
September	45%	55%
October	31%	69%
November	28%	72%
December	52%	48%
January 1990	57%	43%
February	29%	71%
March	57%	43%
April	61%	39%
May	59%	41%
June	56%	44%
Average	49%	51%

Source: Los Angeles County Waterworks District No. 4, 1991.

FIGURE VI A 1



REGIONAL WATER FACILITIES

PLANNING NETWORK

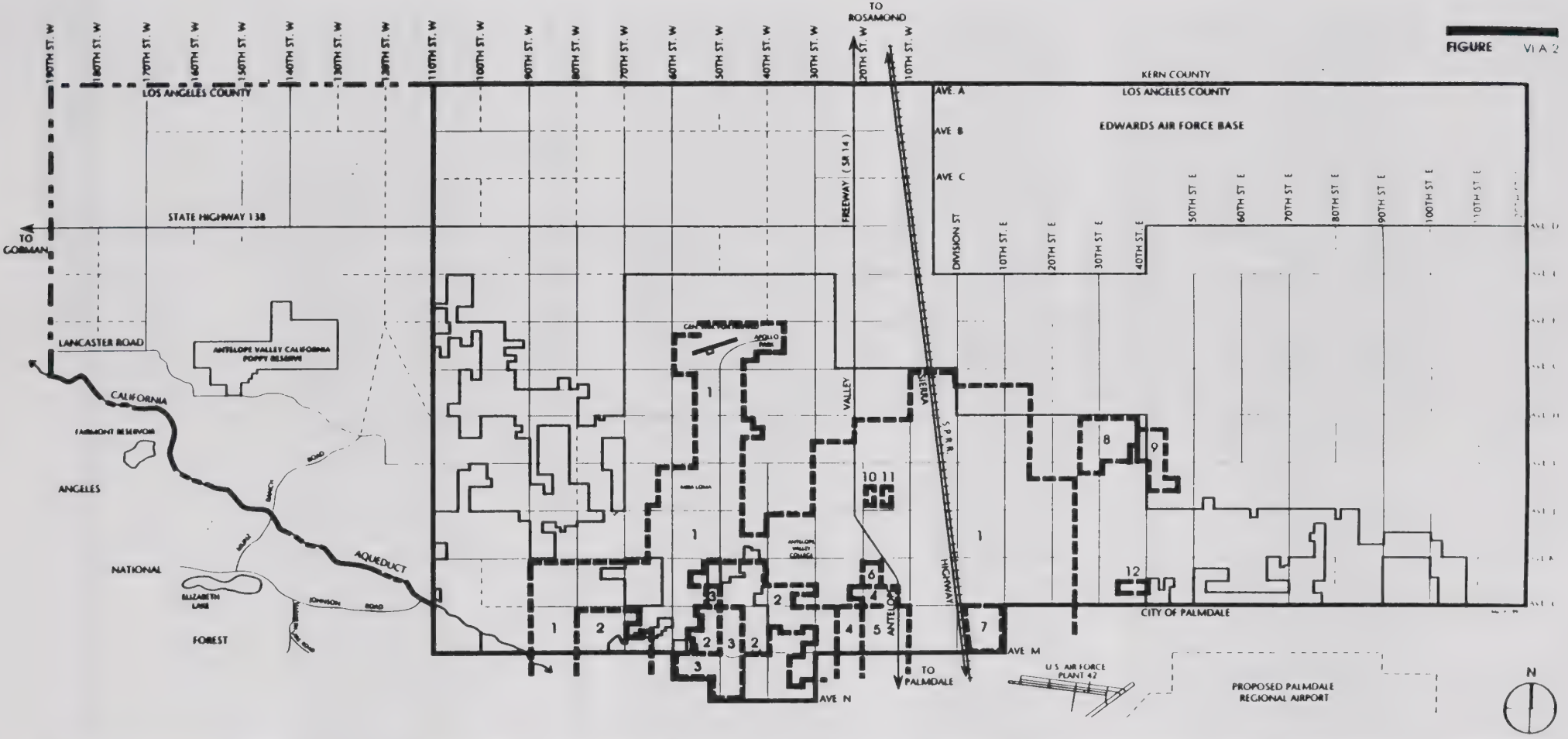
- AQUEDUCT TURNOUT
- PUMP STATION
- WATER TREATMENT PLANT
- FEEDER PIPELINE

Note: The Eastside Water Treatment Plant and the East Feeder are outside the study area.

SOURCE: AVEK Data Sheet February 1989

CITY OF LANCASTER
GENERAL PLAN

FIGURE VI A 2



PLANNING NETWORK

RETAIL WATER AGENCIES

1. Los Angeles County Waterworks District No. 4
2. Quartz Hill Water District
3. Palm Ranch Irrigation District
4. Antelope Valley Water Company
5. White Fence Farms Mutual Water Company
6. Antelope Park Mutual Water Company
7. Landale Farms Mutual Water Company
8. Averydale Mutual Water Company
9. Green Grove Mutual Water Company
10. Lancaster Water Company
11. Sixteenth Street West Tract Water Company
12. Fortieth Street Mutual Water Company

CITY OF LANCASTER
GENERAL PLAN

WWD4 has 21 storage tanks with a capacity of 20.6 million gallons, which are located to serve four (4) pressure zones between elevations of 2,555 and 2,982 feet above sea level. The District is also completing eight additional storage tanks, with a capacity of 6 to 10 million gallons. At present, the District can store less than a day's worth (86 percent) of its maximum daily production of water. With its new storage tanks, the District will be able to store up to 30.6 million gallons, or one and a half day's worth (149 percent) of its maximum daily production (not including its six new wells). This amount of reserve water is considered low, and may not provide adequate protection if the supply of water from the aqueduct is interrupted (WWD4, 1990).

In addition to well water, WWD4 also purchases imported water from AVEK. In 1985, the amount of water furnished to WWD4 from AVEK was 7,898 acre-feet.

f. Quartz Hill Water District

The Quartz Hill Water District (QHWD) serves an area west of Lancaster in the unincorporated area. The District obtains its water from WWD4, its own wells, and AVEK. QHWD currently operates five (5) local wells with a total capacity of four (4) million gallons. A Mello-Roos Community Facilities District was recently established in the Quartz Hill Water District to fund the installation of larger water lines and to upgrade service. As demand increases, the District plans to drill additional wells as necessary to maintain service levels.

g. Local Water Delivery

The local water agencies provide a network of water distribution pipelines within the developed portions of the City. Twelve-inch (12") water mains are primarily located in all of the arterial streets within the City limits, with 4 to 10" mains in the local streets. According to Lancaster's City Engineer, the average age of the water lines within the City limits is less than 20 years and the existing water delivery system is in excellent condition. With this system, adequate water service is generally available to most parcels in the City. Beyond the existing City limits, service is mainly provided by the smaller, isolated water companies through local wells, by private wells to individual lots, and by stored water delivered by trucks.

The cost of water in Lancaster varies due to the twelve separate retail water agencies. Examples of costs for retail water are shown in Table VI-A-2.

h. Water Consumption Patterns

Current peak demand for the City is 40 million gallons per day (mgd), while the average daily consumption is 36 mgd according to AVEK. According to local water agencies, water use in Lancaster varies from peak usage of 1,600 gallons per dwelling unit per day in the summer, to 600 gallons per dwelling unit per day in the winter. This equals an average daily consumption of 1,100 gallons per unit, or an annual consumption of 1.5 acre-feet per year per unit. Based on the 1990 Department of Finance estimate of household composition (2.65 persons per unit), water consumption equals approximately 415 gallons per person per day or 0.5 acre-feet per person per year.

Table VI-A-2
Retail Water Costs, 1991

Water Districts	Cost Of Water[1]	Amount Of Water	Additional Cost Of Water
Landale Mutual Water Company	$45.00 billed every two months	Up to 100,000 gallons	$.55 per 1,000 gallons
Palm Ranch Irrigation District	$20.50 or $25.00 billed every two months[2]	Up to 10,000 gallons	$.90 per 1,000 gallons
Averydale Mutual Water Company	$10.00 billed every month	Up to 15,000 gallons	$.50 per 1,000 gallons
Quartz Hill Water District	$13.70 per month	Up to 500 cubic feet (3,741 gallons)	$.75 per 100 cubic feet (748 gallons)

Source: Planning Network, 1991

1 The cost of water is based on fees charged to a majority of users.

2 New installations have larger water lines and have the higher fee.

In response to the 1977 California drought, the Los Angeles County Waterworks District No. 4 implemented a water rationing program designed to reduce consumption to 90 percent of the previous year's level. While significant savings were obtained in the short-term, per capita consumption quickly increased to former levels as soon as the program ceased. In response to the current drought, in June 1991, Waterworks District No. 4 began mandatory water rationing. In addition, most of the agencies do encourage and provide literature upon request to customers on water conservation.

i. Water Quality

The overall quality of groundwater in the Lancaster area is acceptable, although there have been incidents which have threatened groundwater quality. Fuel leaks, improper disposal practices, overdrafting of groundwater, runoff from landfills, and toxic discharges in the Rosamond area have all posed risks to the quality of the groundwater (City of Lancaster Engineer, 1990). Up to now, the effects of these incidences have not affected water quality in any Lancaster study area. For more information on water quality, see Natural Environment, Water Resources Section II-A.

j. Reclaimed Water

At present, up to 500,000 gallons a day of secondary effluent from the Lancaster Water Reclamation Plant goes through tertiary treatment and is reused, primarily as lake water at Apollo Park and by a few local commercial and agricultural users. Although secondary effluent is permitted to be used for irrigating crops that will be processed before consumption, most of the secondary and tertiary water is disposed of in the Piute Ponds, as there is little local demand for reclaimed water. At this time the cost for reclaimed water is not competitive with groundwater or imported water and the infrastructure for utilizing reclaimed water is not in place.

2. ANALYSIS

a. Long-Range Water Needs

Long-range projections to the year 2010 by the Southern California Association of Governments (SCAG) indicate that the Antelope Valley may eventually support a population of almost 532,000, while the City of Lancaster is expected to have approximately 234,228 residents. Local Water consumption data indicates that Lancaster and the surrounding area consume 415 gallons per person per day, based on present local water consumption patterns and including industrial and commercial use. Based on these rates of water use, the entire Antelope Valley would eventually require an average of 675 acre-feet or 220 million gallons of water per day (mgd). Similarly, the City of Lancaster would require an average 298 acre-feet or 97 million gallons of water per day in 2010.

b. Long-Range Supply

The Los Angeles County Waterworks District No. 4 has had a policy since 1986 to focus their construction efforts toward building facilities that would allow an increase in the amount of AVEK water that they use. As a result, well water usage has dropped from 60 to 70 percent of total water used to 40 percent with the use of AVEK water increasing from 30 to 48 percent to 60 percent. The Waterworks District hopes to reach a water supply ratio of 80 to 90 percent AVEK water and 10 to 20 percent well water.

California is presently in the midst of a drought that has already lasted four years, and is expected to continue through 1991. Many metropolitan areas, including Los Angeles, have begun mandatory water rationing to conserve existing water supplies. Los Angeles County Waterworks District No. 4 also began water rationing in June 1991. Water allocations from the California Aqueduct have already been restricted for agricultural users, and supplies could be curtailed if drought conditions continue. The local water agencies have also responded by an increased pumping of groundwater, which will exacerbate long-term groundwater deficit conditions.

It might be possible to increase the overall supply of imported water without ultimate improvements to the State Water Project facilities. AVEK could purchase water allocations from farms in Kern County or even the San Joaquin Valley. These allocations could be transferred through the California Aqueduct for use in the Antelope Valley.

c. Long Range Water Quality

One of the fundamental long-term constraints for both urban and rural development is not only the availability of water but the quality of water. This entails issuing and enforcing waste discharge regulations in individual communities or businesses whose discharge can affect water quality. In addition, public works and other projects which can affect water quality are also reviewed by the City and impacts identified. It will also be important to permit individual wells only where an adequate supply of good quality water is available to avoid overdrafting and possible groundwater pollution. The City may want to restrict the use of individual wells to areas where it is not feasible to connect to the community water system.

d. Water Rights

Groundwater rights in the Antelope Valley Basin have not been firmly established. The existence of twelve separate retail water agencies that individually withdraw groundwater complicates this problem. For example, uncoordinated and unmonitored drilling has contributed to the declining water table. The right or entitlement of individual water agencies to specific amounts of water is established through a process called adjudication. Since the Antelope Valley is not adjudicated, the drilling of and pumping from wells is uncontrolled at this time. In order to prepare for future demands and to maintain the quality of the groundwater, the City may wish to cooperatively pursue adjudication of the basin with the local water agencies to firmly establish the limits of groundwater use. For more information see Natural Environment, Water Resources Section II-A.

e. Water Storage

As long as adequate groundwater supplies and quality are maintained, a reserve of 1.5 times the maximum production should be adequate to protect public health and safety. However, major emergencies, especially those that threaten the California Aqueduct, such as a major earthquake, would severely limit the amount of water available to local residents. If such an emergency were to occur during a peak water use time (June to September), public health and safety might be threatened if there were insufficient supplies of either groundwater or imported water.

f. Delivery System Deficiencies

Although most of the local water delivery systems operate well during normal demand periods, water pressure could sink below recommended minimum levels during high demand periods, such as a fire emergency. In addition, some of the existing facilities are characterized by obsolete and aging pipes and pumping stations which will require either upgrading or replacement.

While there are no major identified service or facility deficiencies within the City limits, the existing pipelines are aging, and will ultimately face increased failure if a replacement program is not scheduled. Currently, the water delivery system provided by the twelve water companies is completely separate. Efficiency between these water agencies could be improved by coordination and unification. For example, the City may want to assist water providers in designing replacement infrastructure in the individual water supply systems to allow a more efficient means of water delivery.

g. Consumption Patterns

At present, none of the local water serving agencies have any specific consumption rates for various types of land use. However, the Los Angeles County Board of Supervisors recently authorized Los Angeles County Waterworks District No. 4 to prepare a study on consumption patterns using their computerized billing program. The City is also starting to collect data on water consumption. This information may be incorporated into the City's long-range planning process as it becomes available. However, figures in Table VI-A-3, calculated from area consumption patterns, provide water consumption values that can be used as guidelines for long-range planning until local values can be determined.

Table VI-A-3
Water Consumption Rates

WATER USAGE[1]	DAILY CONSUMPTION (gallons)
Per Capita (Maximum)	470
Per Capita (Average)	285
Per Dwelling Unit (Maximum)	1,600
Per Dwelling Unit (Average)	1,100

Source: Planning Network, 1990.

1 Includes Residential, Commercial and Industrial Land Uses.

There are presently no major commercial or industrial uses that would consume large quantities of water within the City. Additional water use by commercial and industrial uses may or may not be in proportion to population increases. While no specific data is available as yet, the major water users in the City are believed to be landscape irrigation for schools, parks, and residences. Two primary ways to enhance future water supplies are water conservation and the use of reclaimed water.

h. Water Conservation

The major problem with water consumption in Lancaster is not of total supply or average use, but of peak use during periods of high temperatures. Although high temperature extremes tend to last only three days or less, the general perception of high temperatures lasting long periods of time causes residents to over-irrigate or otherwise overuse water. Larger shrubs and trees could be installed to reduce the amount of water needed to establish new plants, and so they can more easily survive hot spells.

The clustering of units or the maintenance of small lots would help reduce the community's use of water. Unfortunately, building trends in the Antelope Valley have been toward larger lots with the same or smaller-sized units; this arrangement tends to encourage more landscape irrigation. The City may want to encourage the use of low water use plant materials. Large turf areas such as cemeteries, parks, and school fields could be planted with hearty, drought-tolerant grasses to minimize the use of water for irrigation.

A water conserving feature in site design would be to create ponding through grading/landscaping to hold irrigation water longer. Computerized irrigation controllers, water-sensing potentiometers, and drip irrigation systems are other ways to reduce water use, especially in areas of high water use such as parks and schools.

One problem in the study area is the relative hardness and chemical composition of the soil, which decreases local infiltration. For example, caliche soils are present over a wide portion of the study area. These soils are formed by overwatering crops, where minerals repeatedly leach out of the root zone, causing the formation of calcium carbonates two to four feet deep. One method of site preparation that reduces this condition is to turn over soil to enhance infiltration.

Dry lake bed formation also poses a problem for water infiltration. As water travels down from the mountains, sediment is deposited along the way. By the time it reaches the lowest elevation, only fine particles of clay and silt remain. These sediments are deposited as the water spreads across the flat land, forming an almost impermeable layer of soil.

As the City grows, its residents will need more parks, schools, and homes, with water use increasing accordingly. However, the need for additional water sources, as well as the impact to local groundwater sources, may be significantly reduced through the application of acceptable water conservation practices.

i. Reclamation/Reuse

The City will likely continue to encourage the Los Angeles County Sanitation District to investigate potential uses for secondary and tertiary water. Groundwater recharge could be considered an application, unless a local demand can be found, such as parks, major industrial uses, or landscape irrigation along freeways. Tertiary water could be put back into the groundwater table through injection wells or percolation basins where caliche soils do not prevent percolation. In effect, this method could become an additional source for groundwater recharge.

It would be possible for all of the secondary water from a water treatment plant to receive tertiary treatment and be reused locally. However, water is not yet economical enough to compete with imported water or groundwater. While its cost could be reduced through economies of scale, a significant user would need to be identified. A second option to make tertiary water more cost effective would be to charge higher rates for specific applications of water, or to utilize some type of lifeline water rate that encourages conservation and also provides an indirect incentive to use other sources of water.

The most appropriate receptors of reclaimed water would be uses with large turf areas, such as fairgrounds, parks, schools, greenbelts, cemeteries, common open space areas, or construction sites for dust control. The City may want to encourage more widespread use of reclaimed water as it not only helps recharge local groundwater, but it also "frees up" domestic drinking water for other uses or users. Currently, the City has a policy to encourage and develop improved grassy parks where reclaimed water could be used for irrigation purposes. It is important to note that the location of potential reclaimed water uses in the eastern and western portions of the study area will need to be carefully studied in relation to the location of future wastewater treatment plants.

j. Funding

Currently, the Antelope Valley-East Kern Water Agency is exploring the imposition of developer fees in the form of water capacity charges. Proposed contracts have been sent to the water districts it serves in an attempt to raise revenues for future construction projects within the Lancaster study area. AVEK also supports state legislation that would allow them to charge and set up their own fee schedules. If these voluntary agreements are approved by each of the water districts and purveyors, this would allow the districts to accept fees in AVEK's behalf until the agency can support their own fee program.

AVEK is attempting to cover the costs of construction for the facilities to bring water from the State Water Project to the areas in need of additional water supplies in addition to expanding the capacity of both the Quartz Hill and the Eastside Water Treatment Plants. The agency's goal is to prepare for the demand

that will follow the rapidly increasing population. AVEK's fee is approximately $2,000 per equivalent dwelling unit (EDU) effective June 1, 1990. This fee allows the Agency to develop a reserve for future construction projects and water treatment facilities.

The City has considered taking charge of the Los Angeles County Waterworks District No. 4 to better plan for water needs in Lancaster. However, this plan has experienced substantial opposition from local builders, small water companies, and the City of Palmdale. It is unknown at this time how such a plan would affect the long-term provision of water service to the Lancaster study area.

It may be necessary at some point for the City to coordinate an area-wide Mello-Roos Community Facilities District to help fund future water facilities. However, guaranteeing adequate future supplies may be a more critical issue than the construction of treatment and distribution facilities.

The City may also wish to encourage AVEK to raise its water rates to help cover the costs of future projects. Any increases must be tied to an overall rate structure that encourages conservation either through incentives or penalties. If implemented, it is advisable to begin the new fees with only incentives and progressively work into penalty charges; this will give residents and businesses a period of adjustment to the new charges.

k. Planning for Future Development

The projected population growth in the study area will require the provision of additional water facilities. Although the City does not directly provide water to new developments, the City is responsible for requiring new development to provide adequate services. The twelve separate retail water agencies that serve the City and study area create a disjointed system. This system allowed the unregulated withdrawal of groundwater, which has permanently affected the long-term supply of groundwater in the region. To consolidate the water companies, it may be necessary in the future for the City to become directly involved with water provision through the adjudication process. At this time, to assist in paying for the water facilities, the City may want to study the possibility of combining funding mechanisms to provide adequate facilities at an affordable cost. Such measures could include an area-wide Mello-Roos district and developer fees for new projects, an assessment district and a bond sale for existing residents, and increased water rates for all areas to encourage conservation and provide revenues for additional facilities.

Historically in Lancaster, new development has not paid for the full cost of services, although the provision of water has not been a major issue in terms of building. The Urban Structures Program will assist in highlighting the need for a consolidated water provider. Through this program, applicants for all discretionary projects must provide information on the necessary on-site and off-site capital improvements required by the project, and any public services required by the project. This information is then entered into a financial analysis model. This model compares the specific capital improvement and public service costs to the expected average revenues on an annual basis for the first twenty years of the project. The City then makes a determination on the basis of the financial impact of the project, along with other factors. For more information on the specifics of the program, see the General Plan Preface.

B. WASTEWATER FACILITIES

1. EXISTING SETTING

The collection, treatment, and disposal of wastewater within the City of Lancaster and the surrounding unincorporated areas is under the jurisdiction of Los Angeles County Sanitation District No. 14. The boundary of this district is shown in Figure VI-B-1. Any property outside of District 14 must initiate an annexation request; however, waste flows from unincorporated areas are served by District 14. The Sanitation District does not have, specific infrastructure requirements for annexation. It is, however, the Districts position that the developer is responsible for conveying the wastewater generated by a project to the existing sewer network (Project Engineer, County Sanitation Districts of Los Angeles County, 1990).

a. Collection

Regional trunk sewer lines are maintained by the Los Angeles County Sanitation Districts, and are shown in Figure VI-B-1. All 21 of the major trunk lines are maintained by District 14 and serve almost all of the developed portions of Lancaster. Sewage from the other trunk lines flows by gravity and is collected by the Rosamond Outfall Trunk Sewer near Avenue H (just east of the Antelope Valley Freeway), and then north to the Lancaster Water Reclamation Plant.

Local sewer lines are located in almost all City streets. These are owned by the City of Lancaster and maintained by the Los Angeles County Public Works Department.

b. Treatment

Waste flows from the City are treated at the Lancaster Water Reclamation Plant, located north of Lancaster near Avenue D and east of 20th Street West (see Figure VI-B-1). The plant occupies 525 acres, including four effluent storage ponds, and treats an effluent flow of 8.2 million gallons per day (mgd). Treatment consists of a two-stage process: 1) primary settling followed by stabilization in oxidation ponds (biological treatment). The oxidation ponds are further aerated to enhance treatment, and 2) oxidation by chlorination in evaporation ponds prior to disposal (chemical or partial secondary treatment) (see Figure VI-B-2).

Raw (untreated) effluent is physically screened, producing primary effluent. This is then chemically treated with chlorine to disinfect it. The resulting secondary effluent is then spread in basins to evaporate in the sun. The combined action of the chlorine and ultraviolet light from the sun kills harmful bacteria. An additional secondary treatment step that is not used in this process is the consumption of organic solids by biological degradation.

Only a small amount of secondary effluent goes through a more intensive tertiary treatment process, which further purifies the effluent methods of disposal. This tertiary treatment policy includes evaporation and discharge to three disposal sites: Apollo Park, Piute Ponds, and Nebeker Ranch (see Section d. Disposal).

c. Wastewater Flows

The Lancaster Water Reclamation Plant is currently operating over capacity, treating mainly domestic flows of approximately 8.2 million gallons per day. The plant presently has a capacity of 6.5 mgd, but is undergoing expansion up to 10.0 mgd. Expansion will be completed at the end of 1991 or beginning of 1992, and primarily involves adding oxidation ponds. The Sanitation Districts are discussing the next incremental expansion of the Plant to a capacity of 16.0 mgd, but there are no definite plans or timetables for such an expansion.

While Sanitation District 14 serves much of the developed portions of the northern Antelope Valley, the southern half of the Antelope Valley (primarily Palmdale), is served by County Sanitation District 20 with its Palmdale Treatment Plant. This plant is located approximately 12 miles southeast of the Lancaster Plant near Avenue P at 35th Street East in Palmdale.

The two military bases in the area, Edwards Air Force Base and Plant 42, each have their own wastewater treatment and disposal systems that are independent of the Sanitation District systems.

d. Disposal

The Piute Ponds, just east of the Lancaster Water Reclamation Plant, have been used for many years for domestic sewage disposal. They are located on Edwards Air Force Base property, approximately two miles east of the Lancaster treatment plant (see Figure VI-B-1). In fact, these ponds were originally created as a result of an impoundment constructed in 1961 to prevent effluent from overflowing onto Rosamond Dry Lake and interfering with flight operations. The Sanitation District is now required by the California Department of Fish and Game to maintain a minimum of 200 wetted acres as a wildlife preserve. The plant was expanded in 1988, creating four additional ponds just east of the plant to store effluent, primarily during the winter, to prevent the overflow of Piute Ponds onto Rosamond Dry Lake.

On several occasions, primarily during storms or when the Piute Ponds overflowed, waste discharges sometimes reached Rosamond Dry Lake. Edwards Air Force Base utilizes the Rosamond Dry Lake for emergency landing purposes, research, operations, and critical flight tests. Officials at Edwards Air Force Base indicate that once the Base completes its expansion project, no further discharge will be permitted into the Piute Ponds.

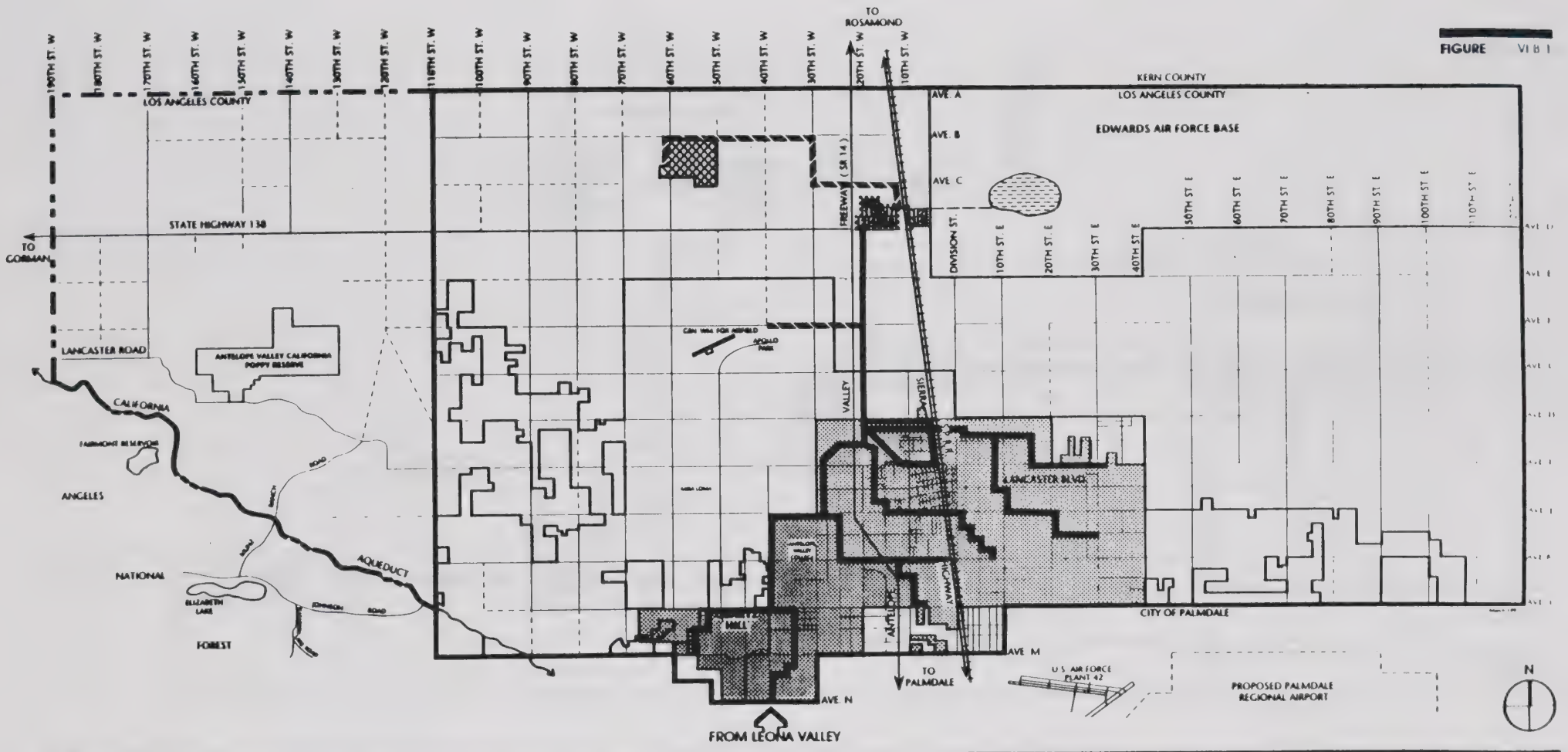
e. Unincorporated Areas

The largely undeveloped eastern and western portions of the study area are outside the jurisdiction of Los Angeles County Sanitation Districts No. 20 and No. 14. Most of the western portion of the study area will need to be serviced by domestic sewer services, since soils conditions in the area place severe limitations on septic tank systems (see Natural Environment, Land Resources Section II-D). The eastern portions of the study area may be more conducive to private sewer systems, as long as land use densities do not overburden the systems.

f. Wastewater Generation

Table VI-B-1 shows the estimated generation rates for wastewater flows by development type as experienced by the County Sanitation District. At present, there are few major sources of industrial wastes within the service area of the Lancaster Water Reclamation Plant.

FIGURE VI B 1



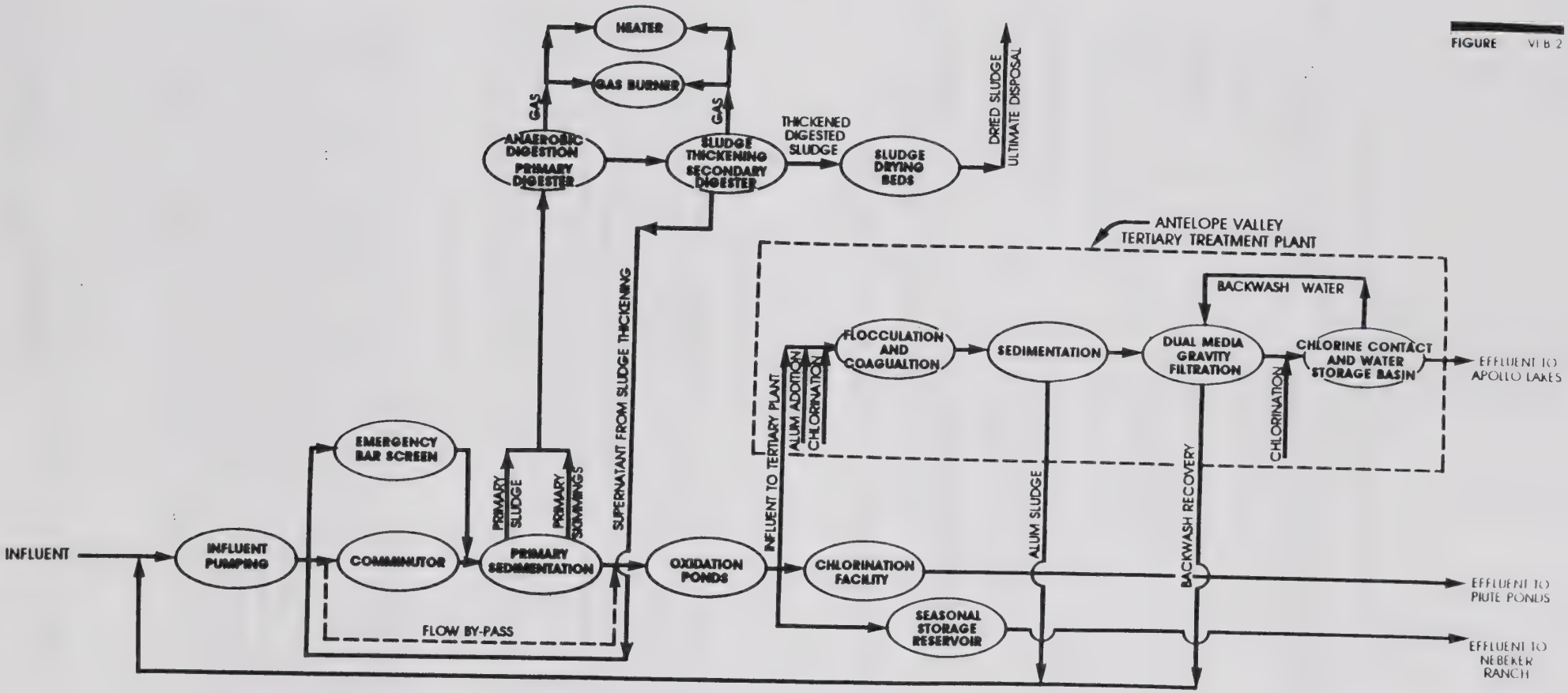
PLANNING NETWORK

- LOS ANGELES COUNTY SANITATION DISTRICT NUMBER 14
- LANCASTER WATER RECLAMATION PLANT OXIDATION PONDS
- STORAGE PONDS
- PIUTE (Disposal) PONDS
- NEBEKER RANCH IRRIGATION SITE
- 24-INCH FORCE MAIN
- TRUNK SEWERS

WASTEWATER FACILITIES

CITY OF LANCASTER
GENERAL PLAN

FIGURE VI B 2



PLANNING NETWORK

SCHEMATIC WASTEWATER TREATMENT PLANT PROCESS

CITY OF LANCASTER
GENERAL PLAN

SOURCE: Los Angeles County Sanitation District.

Table VI-B-1
Wastewater Generation By Development Type

Development Type	Expected Daily Wastewater Flows
Per Capita	75 gallons/person
Adjusted[1]	85 gallons/person
Single-Family Residential	260 gallons/unit
Multi-Family Residential	200 gallons/unit
Mobile Homes	160 gpd/unit
Commercial	100 gpd/1,000 square feet
Industrial	200 gpd/1,000 square feet

Source: Los Angeles County Sanitation District No. 14, 1989.

1 Adjusted figure represents total generation including non-residential areas.

g. Reclaimed Wastewater

Approximately 100,000 to 200,000 gallons of effluent from the Lancaster Water Reclamation Plant goes through secondary treatment daily and is reused, primarily as irrigation water at the Apollo Park. Currently, secondary treated wastewater is reused by a single agricultural user, Nebeker Ranch. Tertiary treated wastewater is reused periodically by the Merco Construction Company, as well as by a few private agricultural users. Additionally, solids are composted, stock piled on site, and made available to local interests to be used as a soil amendment. However, at present, most of the effluent is disposed in the Piute Ponds, as there is little local demand for tertiary water. Similarly, none of the solids are currently being reused.

h. Hook-up Fees

Sanitation Districts are empowered by the California Health and Safety Code to charge a fee to connect to the Sanitation Districts' sewerage system. Los Angeles County Sanitation Districts have established a policy requiring developers to pay a $1,000 per unit connection fee at the time of sewer hook-up. This fee is scheduled to increase to $1,100 per unit in the near future. According to the District, the fee has been calculated to cover the costs of incremental treatment plant expansions, and relief of the existing trunk sewer network. Any upgrade capital (to construct tertiary facilities, for example) is secured through the District's Service Charge Program, which is an annual charge assessed to all system users. It should be noted that the connection fee does not provide for the extension of the existing District's trunk sewer network.

2. ANALYSIS

a. Collection System Deficiencies

According to the Lancaster City Engineer, there are no accurate records available on the condition of the City's sewer system. One important step toward the planning of a comprehensive sewer system is identifying which sewers are near, at, or over capacity. A flow and capacity study is being proposed for the next fiscal year to establish baseline sewer line conditions. Once completed, this report will identify specific pipelines that need to be repaired or replaced, and where new pipelines need to be installed to parallel the existing system. In general, the lack of capacity becomes more critical the further "downstream" the flow goes. The study must, therefore, concentrate on the collector trunks at the north end of the City, especially the lines that feed directly into the wastewater treatment plant trunk.

Approved and pending development in the study area will generate additional wastewater production over current levels. This increased production will create a significant impact on the existing wastewater collection, treatment, and disposal facilities. The County Sanitation District indicates that its systems are being upgraded to facilitate the additional wastewater which will be generated by cumulative development occurring in the area. However, the Sanitation District considers the City sewer facilities to be deficient, although no detailed data is available on its actual condition. In many locations, existing secondary sewer lines are at or over capacity. The additional wastewater generated by cumulative development will exacerbate existing deficiencies.

b. Projected Treatment Needs

The Southern California Association of Governments (SCAG) estimates that the Antelope Valley will eventually have 532,000 residents, which would generate approximately 53 million gallons of wastewater per day.[1] SCAG also projects that the City of Lancaster will have 234,228 residents in 2010, who will generate 23 mgd of wastewater. The relatively large size of the Lancaster Water Reclamation Plant, occupying 525 acres, is primarily due to the type of treatment process utilized (oxidation pond), which is land extensive. The District could presumably utilize a conventional activated sludge treatment process if another plant were to be developed. An activated sludge treatment plant requires less land and produces a higher quality effluent which can be more readily reused.

Using the same treatment processes, the northern Antelope Valley will need one or two additional wastewater treatment plants, depending in part on how much of the study area utilizes leachfield (septic tanks) for sewage disposal. The location of these plants is currently under discussion.

Each plant will probably be able to ultimately handle up to 10 million gallons per day (mgd) of sewage. Together, all three plants would have a combined treatment capacity of 30 mgd, which would be able to serve a population of 350,000 residents, of which approximately three-quarters (250,000) will be Lancaster residents. This would more than accommodate the 2010 SCAG population projections. Each plant would probably start with a capacity of 1 to 2 mgd, then expand in increments to accommodate growth in an orderly fashion.

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[1] As the City of Lancaster develops, the per capita generation factor should approach 100 gpd. The current generation factor being experienced in Lancaster is approximately 95 gpd (County Sanitation Districts of Los Angeles County).

Each new treatment plant would need approximately 175 acres of land to support their existing type of treatment processes. In addition, growing areas such as Riverside County have found that growing populations eventually crowd in on land intensive uses such as treatment plants, and can sometimes force them to relocate. One solution would be that, as the area around a treatment plant develops, the District would convert to more sophisticated treatment processes such as activated sludge digestion, forced aeration in enclosed structures, or some form of tertiary treatment to reduce the amount of land needed to provide treatment.

The Sanitation District may want to consider obtaining land in the near future to keep acquisition costs relatively low and to better provide for compatible land uses around each plant. The City could work with the Districts by identifying and planning sites for additional treatment plants within the study area.

A portion of the increased wastewater flows will be treated by private sewage systems in the rural areas (i.e., septic tanks, leachfields, etc.). These private systems will incrementally help reduce the demand for regional sewage treatment capacity. These systems must be properly engineered or groundwater contamination could occur. Some areas cannot support these systems due to soil conditions. Widespread use of septic systems in the majority of the study area will need to be limited because they require larger lots (half acre or larger) for the leachfields (see Natural Environment, Figure II-D-4). The City, in cooperation with the Sanitation District, may want to investigate the potential impacts of appropriate use of private treatment systems relative to regional treatment plans.

c. Industrial Wastes

As the study area develops, many industrial and commercial uses will be introduced that generate a variety of hazardous and toxic wastes. Although many communities have tried to limit the proliferation of these types of uses, it is virtually impossible, since there is a broad list of substances that are now considered dangerous, including common paints, cleaners, and industrial solvents. The most successful attempts to regulate these types of uses are to carefully plan where they will be located, taking into consideration such factors as the type of underlying soils (in case of spills), sensitive uses nearby, access to specialized waste treatment, location of emergency response services, and access to appropriate transportation routes. In addition, all industrial waste dischargers are required to obtain an Industrial Wastewater Discharge Permit from the County Sanitation Districts of Los Angeles. Developers of industrial projects are also required to submit plans for review by the County Sanitation District's Industrial Waste Section, prior to construction. For additional information, see Public Health and Safety, Hazardous Materials Section III-E; and Municipal Services and Facilities, Solid Waste Section VI-D.

d. Disposal and Reuse

It is important for the City to continue to encourage the Sanitation District to investigate potential uses for secondary effluent. Groundwater recharge could be one application to consider. However, the Districts would be required to upgrade the current level of treatment (to tertiary treatment) at the Lancaster Water Reclamation Plant before a groundwater recharge program could be implemented, per the State Department of Health Services. At this time, direct injection of tertiary effluent would not be allowed. In addition to recharging the water table, local demand may eventually be generated by industrial uses.

At the present time, very little of the secondary effluent or solids generated by the Lancaster Water Reclamation Plant are reused, and there appears to be little local demand for these products. Potentially, almost all of the secondary effluent from the plant could be sent through the tertiary process and reused locally; however, it is not presently cost competitive with imported water or groundwater.

The County presently uses tertiary effluent to maintain the level of the lake in Apollo Park and to irrigate the park. Nebeker Ranch utilizes secondary treated effluent for the irrigation of fodder crops, supplied by an irrigation pipeline installed by District No. 14. Although there is no cost for the water, Nebeker does, however, pay the pumping costs. The most appropriate receptors of tertiary water would be uses with large turf areas, such as fairgrounds, parks, schools, greenbelts, cemeteries, or common open space areas. The City may want to encourage more widespread use of reclaimed water, since it not only helps recharge local groundwater, but it also "frees up" domestic water for other uses. The location of potential reclaimed water users in the eastern and western portion of the study area will need to be carefully studied in relation to the location of future wastewater treatment plants.

One option to make tertiary water more cost effective would be to charge higher rates for specific applications of water, or to utilize some type of lifeline water rate that encourages conservation and would also provide an indirect incentive to use other sources of water.

To facilitate the use of reclaimed water in the future, the City may wish to consider requiring developers to install dual pipe systems to accommodate domestic and reclaimed water for their projects. In addition, encouraging the County to prepare a study on the physical and economic feasibility of utilizing reclaimed water, especially in terms of distance from sources versus the size of the potential use, would allow the City to gain information to develop new water reclamation plans.

e. Planning For The Future

The first step in establishing an appropriate sequence of development options is to conduct a complete flow study of the existing sewage conveyance system. This will not only identify existing and potential deficiencies, it will allow developers to analyze the specific impacts their developments will have on the existing system.

One important aspect of surveying the existing collector system will be the effect of new development in outlying areas on the existing system. After the flow study is completed, newly proposed developments can provide an analysis of the impacts of their projects on the present downstream sewer lines. This study will then be incorporated into the Urban Structures Program to estimate the impact a proposed development will have on an existing system. The City will be better able to equitably spread the burden, as well as the benefits, of improvements to all City residents.

Once appropriate plans have been made to accommodate ultimate wastewater flows, local developers can more effectively design their projects to be consistent with the master service plan.

The City may want to explore potential funding alternatives for providing sewer service, especially the impact that individual septic systems will or could have on regional facilities. Through the Urban Structures Program, the costs of serving new development as well as existing development will be identified in an effort to equitably spread the burden (as well as the benefits) of improvements to all City residents.

C. FLOOD CONTROL AND DRAINAGE

1. EXISTING SETTING

a. Flooding

An extensive portion of the City of Lancaster and its planning area is subject to flooding. This is caused by uncontrolled runoff from the San Gabriel foothills flowing across the flat desert basin. Runoff flows north out of several major canyons, then spreads out and flows across the alluvial fans, eventually reaching the dry lake beds northeast of the City. Much of the study area is subject to sheet flow, the type of flooding in which water flows over large areas with depths of only a few inches.

Most localized drainage problems correspond closely to natural tributaries. Flood hazards are most severe in the southwestern foothill region of the study area, where debris laden flows move at the greatest velocity. Storm flows in the undeveloped portions of the study area eventually reach wide north-south swales, and are then intercepted by various flood control channels or natural creek beds. Within the study area, the drainage channels of greatest concern are Amargosa Creek, Anaverde Creek, Fairmont Creek and Little Rock Creek. There are also three major drainage areas outside of the City that represent area-wide concerns: -- Pearland and Big Rock to the east, and Portal Ridge to the west.

b. Regional Planning

In 1985, the Los Angeles County Department of Public Works developed the "Antelope Valley Master Plan of Drainage," which is designed to be a comprehensive plan for flood control facilities in the entire Antelope Valley. The three main goals of this plan are to provide regional flood protection; to help recharge the groundwater basin; and to promote the maintenance of the Rogers and Rosamond dry lake beds (see Figure VI-C-2). The plan consists of the following elements:

- *Flood Plain Management* In foothill and mountain areas, the plan emphasizes non-structural solutions to flood control, such as land use restrictions that identify what areas can be developed.

- *Detention Basins* These basins would be small, fenced, unlined (earthen) basins designed to temporarily detain storm flows and remove debris before flows move downstream.

- *Retention Basins* These basins would fully retain storm flows. This would enhance percolation of stormwater back into the groundwater table in addition to providing flood protection. A number of intermediate basins are also proposed.

- *Channelization* A series of earthen or concrete open channels connecting detention or retention basins to underground storm drains downstream.

- *Planned Flow Paths* In areas that were not experiencing urbanization at the time the plan was prepared, the County designated a number of "natural" or unimproved swales that collect significant runoff and/or sheet flow and direct it towards channelized facilities.

- *Groundwater Preserves* Ultimately, the plan envisions a series of below-grade regional retention/detention basins with paved or graded earthen channels to drain the study area. These would be located near the mouths of the major watersheds, allowing water to pond and recharge groundwater basins.

c. Planning Areas

The Lancaster portion of the County Master Plan of Drainage is divided into seven major planning areas or "study elements": Amargosa, Anaverde, Fairmont, Pearland, Portal Ridge, Little Rock, and Big Rock. It should be noted that most of the planning areas of the Amargosa, Little Rock, and Big Rock study elements are not within the Lancaster study area. Desert washes are shown in Figure II-C-1 in Natural Environment. Table VI-C-1 provides additional data on these study elements, while their boundaries are shown in Figure VI-C-1.

A variety of flood control facilities is proposed in each planning area, including open channels (earthen and/or concrete), and underground storm drains that connect to retention or detention basins (see Figure VI-C-2). Storm flows are either retained in the area to percolate into the groundwater table or are transferred out of the study area to the north by various conveyances. Flood plain management (non-structural measures) are also proposed in all of the headwater areas of the foothills. Existing flood control structures in the City of Lancaster are shown in Figure VI-C-3.

Amargosa Creek Study Element This area encompasses 47 square miles including a section through the middle of the City of Lancaster. Amargosa Creek proceeds north out of the Sierra Pelona Mountains and enters the Antelope Valley along Elizabeth Lake-Pine Road near the intersection of 25th Street West and Avenue Q. The creek flows north along the Antelope Valley Freeway, dividing into two flows between Avenues N and O. The western flow ends in a retention basin located on the northeast corner of Avenue H and 20th Street West. The eastern branch meanders north and eventually merges with the Caltrans retention basin.

Planned improvements include a detention basin at the mouth of Amargosa Creek easterly of the Leona Siphon and northerly of Elizabeth Lake Road at 25th Street West, 12.5 miles of earthen channels, 1.5 miles of concrete channels, and 10 miles of storm drains. The estimated cost for these improvements (in 1985 dollars) is $55 million.

Anaverde Creek Study Element This area encompasses 41 square miles immediately east of the Amargosa area. This creek also collects runoff from the Sierra Pelona Mountains and flows southwest along Sierra Highway, also crossing the City of Palmdale. The creek merges with the Lockheed Drainage Channel and is retained by the Air Force Retention Basin within Plant 42.

Planned improvements include three retention basins, including a recharge basin at the mouth of Anaverde Creek, 27 miles of earthen channels, 20 miles of concrete channels, and 22 miles of storm drains. The estimated cost for these improvements (in 1985 dollars) is $275 million.

Fairmont Study Element This area encompasses 456 square miles, 279 square miles are within Los Angeles County, while the remainder is outside of the study area in Kern County. Fairmont Wash is located northwest of Lancaster and collects runoff from Board Canyon in the far west end of Portal Ridge and also from the Fairmont and Antelope Buttes. This wash flows north until it reaches Avenue D, where it turns east and eventually reaches Rosamond Playa.

Planned improvements include one retention basin, 117 miles of planned flowpaths (unimproved), 11 miles of earthen channels, and nine (9) water conservation preserves. The estimated cost for these improvements (in 1985 dollars) is $100 million.

Table VI-C-1
Regional Flood Control Planning Areas

County Flood Control Study Element	A Total Area[1]	B Percent City[2]	C City Area[3]	D Total Cost ($)[4]	E City Cost ($)[5]
Amargosa	47	35	16	55 M	20 M
Anaverde	41	50	21	275 M	140 M
Fairmont	279	50	140	100 M	50 M
Pearland	75	25	19	180 M	45 M
Portal Ridge	67	70	47	260 M	185 M
Little Rock	135	20	27	NA	NA
Big Rock	574	14	80	NA	NA
Total	1,218	29	350	870 M	440 M

Note: M = million

Source: "Antelope Valley Master Plan of Drainage", Los Angeles County, 1985.

1 In square miles.
2 Proportion of City area in particular study element.
3 Square miles of City within study element (A x B).
4 Cost of proposed improvements in 1985 dollars.
5 City proportion of cost, estimated form area (B x D). Estimates are based on proportion of City within study element and may not reflect true costs based on actual flood area served versus improvements.

Pearland Study Element This area encompasses 75 square miles immediately east of the Anaverde area. However, of this total, only 19 acres are within the Lancaster study area. The major floodcourse within this portion of the study area is Little Rock Creek. This creek collects runoff from Little Rock Canyon in the San Gabriel foothills. It passes west of the town of Littlerock and travels generally north, eventually reaching Rosamond Playa.

Planned improvements include seven retention basins, two detention basins, 38 miles of earthen channels, 12 miles of concrete channels, and 19 miles of storm drains. The estimated cost for these improvements (in 1985 dollars) is $180 million.

Portal Ridge Study Element This area encompasses 67 square miles immediately south of the Fairmont area, over two-thirds of which are within the Lancaster study area. In addition to Fairmont Wash, the Portal Ridge is drained by the Neenach Wash and the Mira Loma Wash, along with many smaller washes. The Neenach Wash collects runoff from La Liebre Rancho and travels due east until it merges with runoff from the Fairmont Wash. Waters from the wash eventually enter Lancaster along 40th Street West between Avenue H and Avenue I-4. The Mira Loma Wash travels east along Avenue I, and veers north at 30th Street West where it merges with other washes.

Planned improvements include 5 retention basins, 2 detention basins, 28 miles of earthen channels, 33 miles of concrete channels, and 24 miles of storm drains. The estimated cost for these improvements (in 1985 dollars) is $260 million.

Little Rock Study Element Almost all of this 135 acre area is outside of the Lancaster study area. The City portion (27 acres) contains the lower end of Little Rock Wash as it moves toward Rosamond Dry Lake.

At this time, much of this area is designated as "planned flow path" and there are no structural improvements proposed. However, ultimate development of the Little Rock area will require some amount of regional and local flood control improvements to eliminate local flooding.

Big Rock Study Element Almost all of this area (85 percent, or 491 out of 574 square miles) is outside of the Lancaster study area. This area contains the Big Rock Wash which drains virtually all of the lands east of the Little Rock area east to the County line.

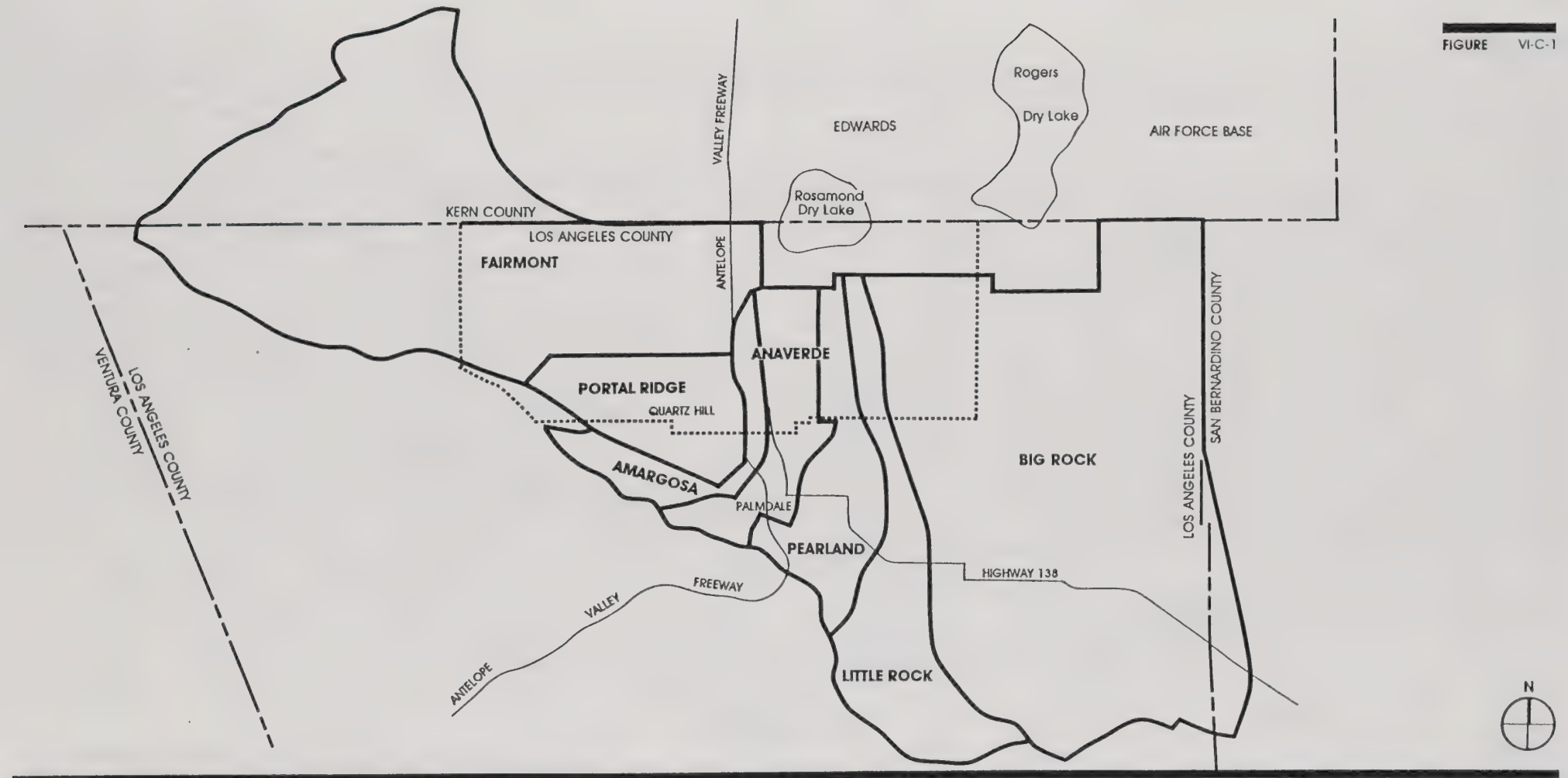
This area is presently designated as "planned flow path" by the County Drainage Plan and no structural improvements are proposed. However, ultimate development of this area will require some regional and local flood control improvements to eliminate local flooding. In addition, changes in regional runoff from this and the other "eastern" drainage areas could significantly affect downstream deposition of materials on the dry lake beds.

d. Lake Bed Formation

It is a commonly held belief, that replenishment, of the dry lake beds, northeast of the City, depends on annual storm flows, out of the mountains that carry mud, silt, and clay onto the flat basin, where new material is deposited on the lake beds. While this sequence is generally correct, it is more likely that stormwaters with little or no debris, carrying only a small amount of fine clay particles, liquefy the top layers of the existing lake surface. This, along with the small amount of additional materials, forms a new, flat lake surface through redeposition during evaporation.

Over the centuries, this process has continued to create the "self-sustaining" dry lake beds observed today. The key to successfully maintaining the health of these lakes is to allow stormflows to continue depositing small layers of clay on an annual basis. Concreting creeks for flood control has been proposed for the area. If this happens it will be critical to establish minimal flows that contain sufficient materials to maintain lake bed formation.

FIGURE VI-C-1



FLOOD CONTROL PLANNING AREAS

PLANNING NETWORK

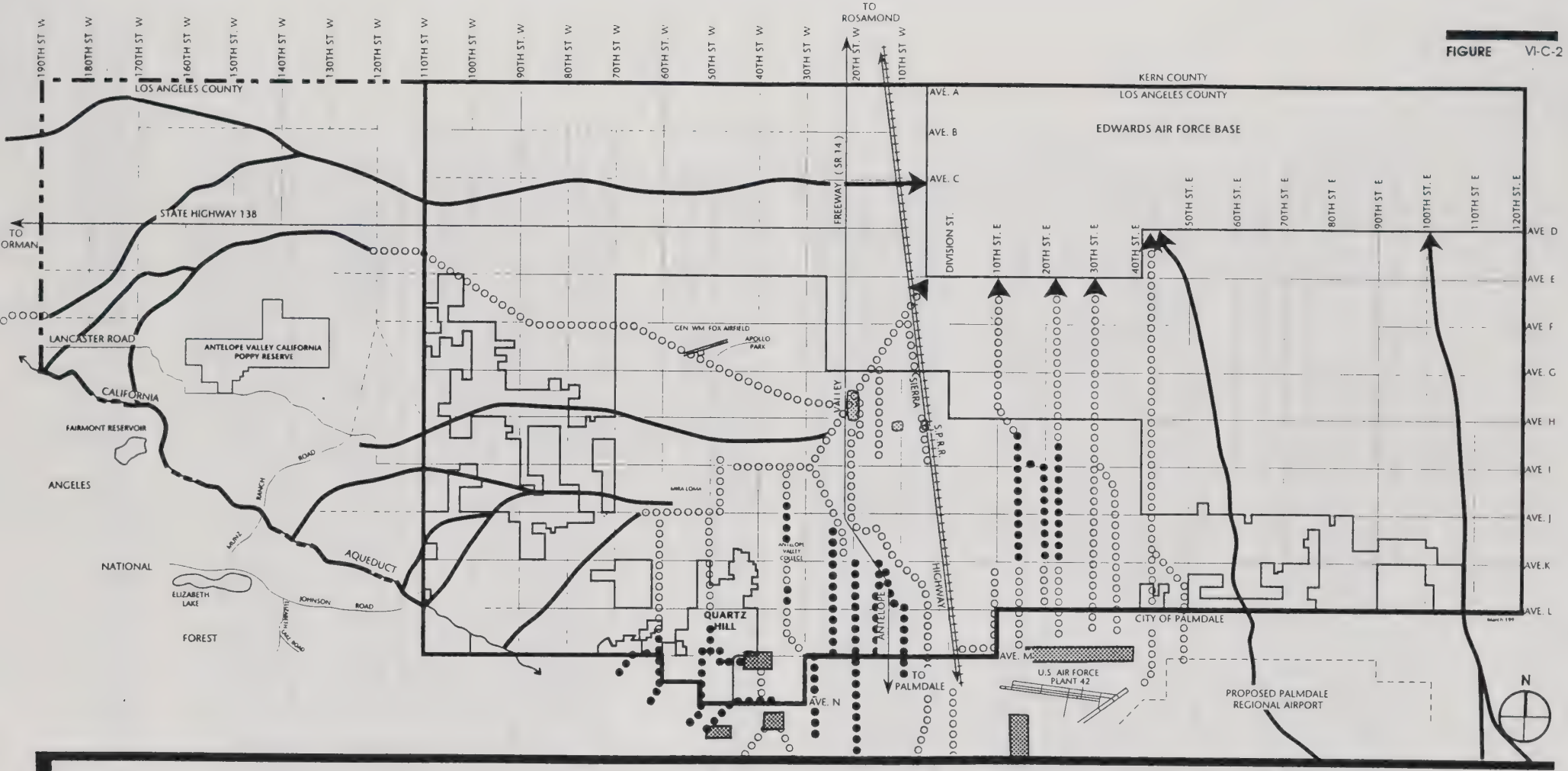
FLOOD CONTROL PLANNING AREA BOUNDARY

STUDY AREA BOUNDARY

CITY OF LANCASTER
GENERAL PLAN

SOURCE: Antelope Valley Master Plan of Drainage ; and Planning Network

FIGURE VI-C-2



PROPOSED REGIONAL FLOOD CONTROL FACILITIES

PLANNING NETWORK

DRAINAGE CORRIDORS

- Open Channel
- Closed Conduit
- FLOODPLAIN MANAGEMENT PATH
- FLOOD CONTROL BASIN

SOURCE: Los Angeles County Comprehensive Plan of Flood Control and Water Conservation, 1987.

CITY OF LANCASTER
GENERAL PLAN

CITY of LANCASTER, CALIFORNIA INCORPORATED NOV. 22, 1977

e. Local Planning

Lancaster has prepared a City Master Plan of Drainage which incorporates all elements of the County Master Plan. However, as with the County plan, the City plan has no identified funding or schedule as yet for major improvements, except in the downtown area and along Amargosa Creek. As developed lands are covered or paved over, their natural absorption capabilities are reduced and the amount of runoff is increased. Even small amounts of rain in the Lancaster area can cause flooding problems because of the general lack of sufficient improved storm drain facilities.

For large projects (over 100 residential units), the City's Master Plan of Drainage calls for the construction of local retention or detention basins until the regional system can be built. New local flood control facilities are presently built on an individual, project by project basis. New developments are required to build a retention basin or basins that retain a 50-year storm on-site. However, during the storms of March 1991, many of these retention basins overflowed, resulting in flooding in the Quartz Hill area. This program is generally considered to be an interim solution until the development can connect to an improved local or regional facility, such as a storm drain or flood control channel. As the regional system is built, these basins may be converted to detention basins for peak flows only.

For smaller projects (less than 100 residential units), streets are considered the primary stormwater conveyance facility. Local streets currently direct much of the storm water flows to the few existing improved storm drain structures. Existing Los Angeles County standards are to maintain a 50-year storm within the right-of-way, while the streets themselves are to contain a 25-year event. The City Master Plan of Drainage calls for containment of 50-year flows within the curbs of the streets.

Since streets act as the primary local flood control program, new houses are usually built 2 to 3 feet above street grade. However, older homes were built at or near street grade, and local flooding presently affects areas with older housing to a greater degree than areas with new housing.

f. Existing Facilities

There are few significant regional flood control facilities in the City. However, as shown in Figure VI-C-3, the City is increasing the number of local flood control facilities, including channels, storm drains, and retention basins. A large retention basin has been built east of SR-14, north of Avenue H, with an earthen channel running south to roughly Avenue J-8, along the eastern side of SR-14. A combination of storm drains and concrete channels run south to roughly J-8 turning east to roughly 15th Street West at Avenue K. There is an existing storm drain along Avenue I between SR-14 and Sierra Highway, as well as one along Avenue J from 10th Street West that will be extended in the future. There is a concrete channel to the west of SR-14 between Avenue I and Avenue K. Earthen channels are located on the east and south sides of the Mira Loma Site. Two small retention basins are located south of Avenue H between SR-14 and Sierra Highway and another is located east of Sierra Highway south of Avenue K.

Streets are still generally used to convey water runoff, which tends to flow in sheets over paved surfaces and collect in low lying areas. Several areas in the City have recurring flood problems during rainy periods. Additional structural improvements are necessary, as many areas in Lancaster continue to be susceptible to flooding.

g. Funding

The City presently has a $1,000 per unit assessment to fund local flood control improvements. Since 1984, the County has been collecting $2,000 per unit in the surrounding unincorporated areas to fund regional improvements. The County conducts a Deficiency Study every two years to identify needed improvements.

The City is presently discussing raising their assessment to provide additional funding for the local share of the regional improvements. In addition, several local developers are discussing establishing Mello-Roos Community Facilities Districts to pay for their portion of local and regional storm drain improvements.

2. ANALYSIS

a. Regional System

While the Antelope Valley Master Plan of Drainage may be an accurate mathematical model for calculating drainage improvements, it is not a flooding study per se. However, it is presently the only comprehensive flood planning document for the Antelope Valley. The original cost estimate for the improvements in this plan were calculated at almost 4 billion dollars, which would have equalled an assessment of over $6,000 per unit. The plan was eventually scaled back to only a third of the improvements originally planned, and was used as the basis for the County's present $2,000 per unit fee. It should be noted that this model was never calibrated to existing storm flows.

The urbanization that has taken place since the early 1980s may require the City and the County to re-evaluate regional drainage needs. Some issues that will be important to focus on include:

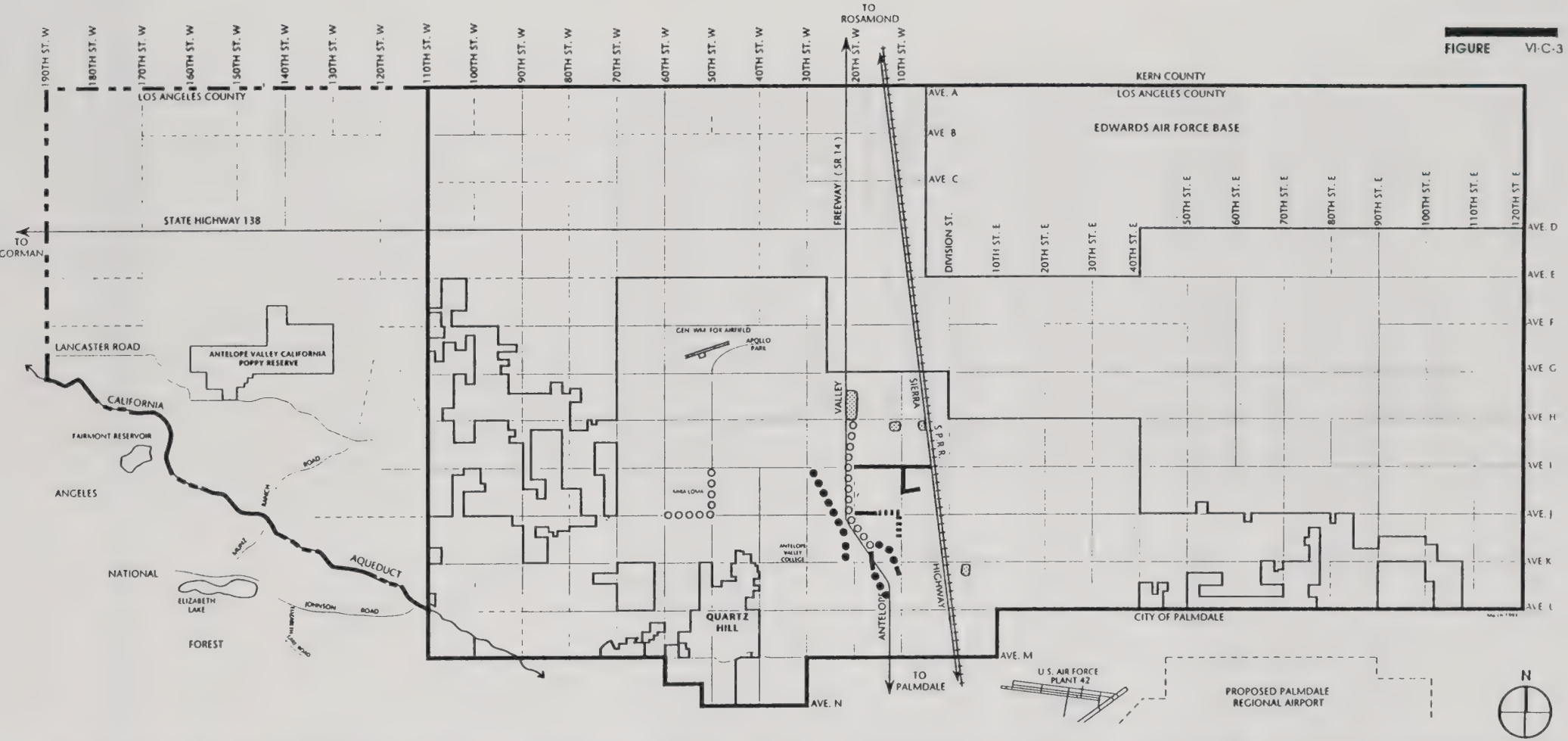
- Specific flood control improvements needed based on actual flooding conditions
- Schedule of improvements prioritized on level of need
- Anticipated costs of prioritized projects
- Appropriate mechanisms to provide these improvements

Until a re-evaluation can be completed, the City may want to consider development restrictions or additional requirements in areas subject to recurrent flooding, especially those that impact regional flood control. This applies to either their location relative to flooding, or to the type and extent of flood protection they require.

b. Lake Bed Replenishment

Flood control programs and facilities, such as detention basins, storm drains, and channels in the eastern portions of the study area (the Pearland, Little Rock, and Big Rock Study Elements) will need to allow the transport of appropriate runoff to adequately maintain the dry lakes.

FIGURE VI-C-3



PLANNING NETWORK

- Existing Earthen Channel
- Concrete Channel
- Existing Storm Drain
- Proposed Storm Drain
- Existing Retention Basin

SOURCE: City of Lancaster, Master Plan of Drainage.

CITY FLOOD CONTROL STRUCTURES

CITY OF LANCASTER GENERAL PLAN

c. Local System

It is important for the City to consider preparing a local flooding study to identify improvements to alleviate existing flooding within the City. These improvements should be based on the determined level of protection desired and be prioritized with a schedule for implementation. At present, there is insufficient information available on the extent of flooding and potential improvements, the result of previous emphasis on the use of streets and retention basins for flood control.

Appropriate funding mechanisms will need to be examined, such as a Citywide bond measure and an assessment district to maintain these improvements in the future. Any local study must be coordinated with regional studies to assure that regional and local projects can be integrated.

d. Coordination of Improvements

The integration of both regional and local flood control improvements will provide the most effective protection system. Once the proposed regional and local studies are completed, the next step will be for the City to plan the most effective funding strategies to assess both existing and future residents and businesses.

By working closely with developers of major projects, the City can provide both local and regional flood control infrastructure. These improvements could also be incorporated into City and County funding programs to provide the most cost effective flood control system. Such cooperative programs may require incentives, such as density bonuses or density transfers to achieve the desired level of protection.

Until a re-evaluation of regional plans can be prepared for the outlying eastern and western portions of the study area, the City may want to encourage development only where it will not increase impacts on existing flooding. Developments that increase stormwater flow into areas that already experience periodic flooding may be restricted. Conversely, developments that can provide needed improvements or provide new systems to bypass or reduce existing flooding may be encouraged. Under these considerations, the construction of isolated retention basins on individual development projects may not be the most effective long-range use of land, as indicated during the floods of March 1991, unless such areas are carefully planned regarding future use.

D. SOLID WASTE

1. EXISTING SETTING

a. Waste Generation

The generation of solid waste in the Lancaster area has been increasing, steadily, over the last decade. Waste generation in the Antelope Valley is estimated using the 1980 waste quantity of approximately 1.026 tons per capita per year, with an annual escalation of 1.5 percent. This figure includes waste from non-residential as well as domestic sources. Although this level of waste generation is significantly higher than those used in recent environmental documents (0.44 tons in GPA/Annexation EIR 88-59), and present waste generation is approximately 1.19 tons per capita per year, it will be used as a "worst case" for estimating future waste generation. This increase in waste production is proportional to population increases, and presently equals a total of 107,100 tons per year or 294 tons per day of solid waste generated in the Lancaster area (based on a population of 90,000). Table VI-D-1 shows individual waste generation factors applicable to the Lancaster area.

Table VI-D-1
Solid Waste Generation
(In Pounds)

Source	Per Day	Per Month	Per Year
Per Capita			
Individual	3.5	106	1,278
Total[1]	6.5	198	2,380
Residential			
Per Dwelling Unit[2]	10.5	319	3,833
Commercial/Industrial			
Per 1,000 square feet	5.0	152	1,825

Source: Waste Management of Lancaster from EIRs for GPA 88-39 and Zone Change 88-32.

1 Includes all residential and non-residential sources. Based on 1990 draft Palmdale General Plan figure of 1.19 tons (2,380 pounds) per person per year.

2 Individual generation times three persons per unit for all types of units.

b. Collection

Two private companies provide, by contract, all solid waste collection and disposal services to the City of Lancaster: Waste Management of Lancaster and Antelope Valley Rubbish (also called the Palmdale Disposal Company). Waste Management of Lancaster is located at 600 East Avenue F, which is also the site of the Lancaster Landfill. This private company has a service area of 120 square miles, from 60th Street West to 40th Street East, north of Avenue L. The company indicates that they collect an average of 42,141 cubic yards per month or 7,024 tons per month (Operations Manager, 1990).

While Antelope Valley Rubbish collects almost 800 tons of solid waste per day, it primarily serves Palmdale and Los Angeles County residents. However, Lancaster residents south of Avenue L are also included in their service area. The company collects a total of 210,000 tons per year (17,500 tons per month), which is disposed of at their Palmdale facility (see Section c. Disposal). In July 1991, the Lancaster City Council approved a trash franchise agreement with Waste Management of Lancaster and Antelope Valley Rubbish. Through this agreement, Waste Management of Lancaster received the right to serve residents north of Avenue L, while Antelope Valley Rubbish is to serve residents south of Avenue L. The impetus for the agreement came as part of the City's effort to meet the Integrated Waste Management Act of 1989 (AB-939), which requires cities to reduce trash 25 percent by 1995 and 50 percent by 2000. In an effort to meet these requirements, the agreement will allow the City to impose an official tax lien against residents who refuse to pay for trash collection service.

c. Disposal

Lancaster Sanitary Landfill This facility is privately owned and operated by Waste Management of Lancaster, and is located at 600 East Avenue F, near 10th Street East, approximately one mile north of the Lancaster City limits. It is a Class II landfill, taking non-hazardous domestic, commercial, and construction wastes. Waste Management has indicated that the remaining life of the landfill is 5 years based on present volumes, although the recent Los Angeles County (State) Prison EIR indicated that the landfill would be closed around 1992. Waste Management is studying expansion of the landfill by 60 acres, which would extend operations until the year 2012. Ultimately, the company plans to expand a total of 170 acres, adding enough capacity to serve the present area population for 92 years (Landfill General Manager, 1990). However, as the population of the area grows, the landfill will have to accommodate additional wastes which will shorten its actual life.

Palmdale Landfill Antelope Valley Rubbish owns and operates this facility, which is also referred to as the Antelope Valley Public Dump or Landfill. Presently occupying 65 acres of land three miles west of Palmdale, it is also a Class II facility, and does not accept hazardous or non-hazardous liquid wastes and sludge. The operators have recently been given permission by the County for a 75-acre expansion, but no work has begun as yet. This facility also accepts approximately 50 tons of private waste per day (7,500 cubic yards per month divided by 6 cubic yards per ton) in addition to wastes delivered by local haul companies.

Expansion of both of these landfills will be subject to review and approval by the following agencies:

- Los Angeles County Department of Regional Planning
- Los Angeles County Planning Commission
- Los Angeles County Department of Public Works
- California Department of Health Services
- South Coast Air Quality Management District
- Lahanton Regional Water Quality Control Board

d. Contamination

Both the Lancaster and Palmdale landfill facilities have experienced past problems with groundwater contamination, while the Palmdale site will require extensive reconstruction to eliminate leakage. Until recently, neither facility was closely monitored for groundwater contamination. However, more stringent testing and mitigation measures will be implemented in the near future to prevent the reoccurrence of past problems.

e. Regional Waste Planning

The County of Los Angeles is responsible for regional waste management and planning. The California State Solid Waste and Resource Recovery Act of 1972, as amended, required each county to prepare a comprehensive waste management plan. In 1986, AB 2948 (Tanner) was passed by the State legislature which required counties to prepare a plan that specifically addressed hazardous wastes. The County's Solid Waste Management Plan is designed to work in conjunction with the County's Hazardous Waste Management Plan to provide guidelines and siting criteria for all future landfill and waste management support facilities. These plans do not specifically identify future landfill sites, but the Hazardous Waste Management Plan does identify "General Areas Potentially Suitable for Off-site Hazardous Waste Management Facilities." However, the City of Lancaster has adopted Ordinance 560, which uses the Los Angeles County Hazardous Waste Management Plan as a base, but establishes more stringent siting criteria.

Both of the County's Waste Management Plans identify planning and siting criteria for disposal and other types of waste management facilities. At present, no specific disposal sites for solid waste within the Lancaster study area, or within the Los Angeles County portion of the Antelope Valley, have been locally identified or studied.

The County of Los Angeles has discussed reactivating and expanding a former landfill in the Elsmere area near the intersection of State Route 14 and Interstate 5. However, this is primarily proposed to temporarily accommodate wastes from the Los Angeles basin, and is not designed specifically to serve the Antelope Valley (City of Lancaster Engineer, 1990).

If the Lancaster Landfill were to close, the Antelope Valley site would have to serve a wider area, and would reach its capacity much sooner than presently planned. Currently, there are no locations in the Lancaster portion of the Antelope Valley that have been proposed as landfill sites.

f. Recycling/Resource Recovery

The Integrated Waste Management Act of 1989 (AB 939) requires cities and counties to recycle 25 percent of their wastes by 1995 and 50 percent by 2000. To assure compliance with these goals, the law requires the City to prepare and adopt a Source Reduction and Recycling Element (SRRE) of the Integrated Waste Management Act. The SRRE must address generation and diversion quantities by waste type and must describe programs that will be undertaken to divert additional municipal solid waste to meet the 25 percent and 50 percent diversion goals. To meet these requirements, the City of Lancaster, in conjunction with local solid waste collection companies, implemented a curbside recycling program for such items as aluminum cans, glass, and plastic bottles in late 1991.

The City presently composts tree and landscape trimmings for reuse at local parks. In addition, two local companies purchase various amounts of solid sludge from the waste treatment plant for reuse (see the Wastewater Section VI-B).

Currently, there are no organized recovery programs at the local landfills, such as scrap metal or automobile tires, although some resources are periodically recovered by private users.

g. Cogeneration

Cogeneration is efficient energy management technology whereby one fuel source is used to generate electricity while the by-product of this process simultaneously produces usable heat. The term "cogeneration" generally refers to two different energy processes. The first application is the "cascading" of energy use, typically by substituting natural gas for electricity. In this application, natural gas or some other type of combustive fuel is used to power an electrical generator. The waste heat, which would normally be lost, is recovered and used for some other purpose (heating a pool, baking some product, electricity to power equipment, etc.). While this system requires sophisticated electrical switching equipment and a purchase agreement with the local serving agency, it is a definite way for some organizations, most often large commercial, industrial, or service agencies, to efficiently use energy. At present, there are no major organizations that make use of this type of cogeneration within the City.

The second use of this term is a waste-to-energy process typically proposed at sanitary landfills. In this application, methane that is generated within a landfill by the decomposition of biodegradable materials, which would normally escape undetected, is collected and burned to produce electricity and sometimes waste heat (similar to the first application). None of the local landfills currently utilize this energy process.

2. ANALYSIS

a. Waste Generation

As the City develops, the amount of waste generated will continue to increase. Based on present growth rates, the 2010 population of the City will be 234,228, generating 764 tons per day or almost 280,000 tons of wastes per year. If the Antelope Valley eventually exceeds a population of 500,000 residents, the area could produce 1,625 tons per day or almost 600,000 tons per year of solid waste. Assembly Bill 939 requires cities to reduce trash 50 percent by 2000. If these levels are achieved, generation of waste in 2010 would be 382 tons per day and 140,000 tons per year. When the population exceeds 500,000, the solid waste generation, if reduced by 50 percent, would be 813 tons per day and 300,000 tons per year (see Table VI-D-2).

Table VI-D-2
Solid Waste Projections[1]
(In Tons)

Population	1990 Generation[2] (No Reduction) Per Day	Per Year	2000 Generation[3] (50% Reduction) Per Day	Per Year
234,228	764	280,000	382	140,000
500,000	1,625	600,000	813	300,000

Source: Planning Network, 1991.

1 Includes all residential and non-residential sources. Based on 1990 draft Palmdale General Plan figure of 1.19 tons (2,380 pounds) per person per year.

2 Used as a worst case scenario.

3 With full compliance of AB-939.

b. Disposal

There is adequate landfill space presently available to serve the short-term needs of the area. In addition, long-term needs could be met by acquiring and developing additional landfill space at existing sites. However, the City may want to consider identifying additional landfill space in outlying areas for several reasons. At some point in the future, the amount of waste produced in this area will eventually exceed the presently available landfill space. Although more land could be added to existing landfills, including the Lancaster facility, it is located immediately north of the City in an area that may eventually be developed. In addition, it is in an area with essentially flat topography, and so this facility will create a waste "mountain". The City needs to determine if it desires this type of facility in a location which will be visible from nearby developing areas.

It will be important for the City to work with the City of Palmdale, the County of Los Angeles, and the local waste disposal companies, including Waste Management of Lancaster and Antelope Valley Rubbish, to prepare a comprehensive waste management plan for the Antelope Valley. Specific future landfill sites must be identified as soon as possible to allow for their timely purchase and scheduling of usage. Plans for additional outlying sites must take into account the location and capacities of existing facilities, and their ultimate disposition, including reclamation.

c. Potential Landfill Sites

Portal Ridge Based on the geology of the area, the Pelona Mountain foothills in the southwestern portion of the study area probably represent the most appropriate location for additional local landfill sites. This area contains numerous canyons of various sizes and shapes that would lend themselves to the design of a landfill. According to "Areal Geology of the Western Mojave Desert California,"[1] the ridge also contains bedrock and soils that are not continuous with the local groundwater table. This area has also been mentioned as potential groundwater recharge areas. Any plans for a landfill in the area will have to be coordinated with water agencies.

However, the Portal Ridge area does contain numerous traces and branches of the active San Andreas Fault, and a major seismic event along the fault could damage a landfill. Landfills typically contain an underlying, impervious lining to prevent leachate from the landfill from moving off-site. This lining most often takes the form of a layer of clay soils or some type of plastic material. Seismic shaking could induce subsidence or ground failure under or around the landfill. If the protective lining were to be damaged or destroyed, local groundwater could be contaminated by landfill leachate.

Potential designs for a landfill in this area must take into account local seismicity, soil composition, location of groundwater, adequate protective layers, and monitoring for contamination. Additional considerations include a resource recovery program and even waste to energy systems at this facility.

Eastern Desert The only other potential site within the Los Angeles portion of the Antelope Valley is the Hi Vista area east of Lancaster. This relatively flat, rocky area contains shallow bedrock and no significant permeable soils that could contribute to groundwater contamination by landfill leachate. However, the flat topography of this area would require creating a landfill "mountain" instead of being able to fill in a natural canyon. Such a facility would be visible for miles across the flat desert basin. However, when it was eventually closed, it could be developed into some type of low intensity recreation facility. It would even be possible to include some form of waste to energy program during its operation and after its closure. During its use as a landfill, it would be difficult, if not impossible, to screen such a facility from public view. In the past, residents have opposed the location of a hazardous waste facility in this area, and may also look disfavorably on a landfill site.

Desert Rail Haul There have also been proposals to haul wastes by rail from the urbanized portions of Southern California, Los Angeles County in particular, to one or more remote (desert) landfill locations. At present, the primary site being considered is Eagle Mountain, located between Indio and Blythe, the former iron ore mine for the Kaiser Steel Mill in Fontana. Due to the fact that a rail line crossing the Antelope Valley and Kern County already exists, it is possible that Eagle Mountain may be considered at some point for a regional rail haul landfill.

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1 Geological Survey Professional Paper 522, 1967.

d. Regional Planning

The latest revisions to the County's Waste Management Plans make it clear that individual areas (regions) will be required to accommodate their own waste needs locally, without relying on the previous system of state-wide disposal sites. The Antelope Valley must therefore consider its own needs and identify potential landfill sites as soon as possible. This is most effectively accomplished as a region-wide effort, including potential expansion or phasing out of existing facilities.

In addition, the new siting requirements for hazardous waste facilities (under the Tanner Bill) in many ways supersede the historical land use authority of local governments. A detailed, but accelerated, review procedure is involved via a regional commission. However, if a proposed facility meets the siting criteria as specified in the County Plan, a local jurisdiction no longer has the authority to deny the application based on incompatibility with the City (unless it affects public safety). This will not be a problem with regard to Lancaster because the City has adopted Ordinance No. 560. This ordinance is more stringent than the County plan, allowing hazardous waste facilities only in M-2 zones.

e. Recycling

Local recycling and resource recovery programs could significantly reduce the amount of solid waste generated in the study area. This in turn could substantially extend the life of local landfills. Curbside collection programs are now being implemented throughout the state, and a number of cities are considering compost collection as well. It is possible that aggressive recycling and resource programs, in conjunction with expanding existing facilities, may provide enough physical waste disposal space to meet the needs of the Lancaster area.

f. Cogeneration

The City may want to prepare an engineering study on the potential for waste to energy cogeneration systems at existing or future landfills. In addition, the City may want to work with the Southern California Gas Company and Southern California Edison Company to encourage local businesses to consider substituting natural gas-generated electricity in lieu of purchased electricity. The City could also provide information to large, potential new energy users within the City as to the benefits of using cogeneration. These systems not only help reduce overall energy consumption by using the energy "twice" (once to generate heat and the second to generate electricity), but they can be activated specifically during times of heavy usage to reduce peak consumption (and generation).

E. PUBLIC FACILITIES AND BUILDINGS

1. EXISTING SETTING

The Lancaster study area contains a variety of public institutions, including City, County, State, and United States Government offices, two public hospitals, two public libraries, several park and social service facilities, a homeless shelter, and a detention center. Public institutions in the planning area are described below.

a. City Facilities

The City of Lancaster public facilities include the City Hall, the City maintenance yard, various parks and recreation facilities, and the Community Shelter.

The Lancaster City Hall was dedicated January 5, 1985. City Department offices include: Community Development, Administration, Finance, City Clerk, Public Works, Parks, Recreation and Arts Department, the Redevelopment Agency, and the City Council. The City Hall was designed to provide adequate facilities for City staff for five to ten years, but had reached its capacity by 1988. As a result, in 1989, an addition was built which was intended to extend the life of City Hall for another ten years. The current City Hall facility is 60,000 square feet and houses approximately 150 employees. Due to the rapid rate of growth in the City and subsequent staffing increases, City Hall has little room for expansion.

The City of Lancaster maintenance yard is used for storage, repair and gas service of City owned equipment and vehicles. The City yard houses maintenance activities including street, vehicle, signal, traffic signing and striping, street sweeping, and parks. The maintenance yard was designed to be improved in three phases. Phase 1, which has been completed, consisted of moving the maintenance yard to its current location on a 22-acre site at 665 West Avenue H. Phase 2 will consist of adding additional garages, a shop building and two small hazardous liquid and flammable materials buildings. These last two structures would be separate from the other buildings in the remote eastern section of the site. The cost for this project is expected to be between $3 and $4 million. Phase 3 will consist of additional buildings to store warehouse items and possibly several administrative offices. This final phase will probably not take place for many years (Acting City Manager of Lancaster, 1990).

Lancaster contains a total of 103.7 acres of developed parkland; two County parks, and six community/neighborhood parks. Two parks totalling 11 acres are also located in the study area and are maintained by Los Angeles County. The City of Lancaster recognizes that recreational facilities greatly improve the community's quality of life and City actions have placed the provision of high quality park and recreational facilities for its growing population as a high priority. This includes 106 additional acres scheduled for development within the next five years; five park sites and a municipal golf course with a variety of buildings and facilities, ranging from the Stanley Kleiner Recreation Center at the Lancaster City Park, to fish cleaning facilities at the Los Angeles County Park. In addition, the City of Lancaster is currently constructing The Performing Arts Center on Lancaster Boulevard. The Center will have a main theater with 758 seats and a 99-seat black box theater.

The 1990-1991 Capital Improvement Budget approved ten different park projects, which include: the construction of new restrooms, picnic shelters, park land acquisition, ball field lights, remodeling of a park building, and a feasibility study for a gymnasium. (See Living Environment, Parks and Recreation Facilities, Section IV-D for additional information.)

The Lancaster Community Shelter for the homeless, located at Yucca Avenue and Nicobar Street, was dedicated on November 16,1989. It was completed by the City of Lancaster through the Lancaster Redevelopment Agency in cooperation with the Antelope Valley Chapter of the Building Industry Association (BIA). The BIA organized most private donations from the construction industry while the City coordinated construction activities. The 9,100 square foot facility contains 40 beds, 2 family units, a commercial kitchen with dining area, laundry facility and resident manager unit. During periods of cold weather, it serves as an emergency shelter where people can stay, clean-up, and get a hot meal. The Lancaster Community Shelter houses individuals and families up to 6 months while staff assists in finding other housing alternatives. The major goals of the shelter are to refer people to local job training programs and permanent housing.

b. County Facilities

The Los Angeles County public facilities include the County Administrative Center, and other County administrative offices, the County Courthouse, the County High Desert Hospital, two Los Angeles County public libraries, the Mira Loma Detention Center, a treatment facility for boys operated by the Los Angeles County Probation Department, and other various facilities.

The Los Angeles County Administrative Center, located at 335 East Avenue K-6, contains approximately 50,000 square feet and houses the following County department offices: Agricultural Commission/Weights and Measures, Mosquito Abatement, Weed Abatement, Children's Services Administration, Farm Advisor, Community and Senior Services, Forester and Fire Warden, Department of Health Services, Military/Veterans Affair, Public Works, Regional Planning, and Treasurer. The offices are leased to the County from a private investor.

Nearby, at 349 East Avenue K-6, are the offices of the Department of Public and Social Services, Department of Mental Health Services, Department of Health and Safety, and the Department of Children's Services. This building is also being leased by private investors to the County of Los Angeles.

Other administrative offices located in Lancaster include the Los Angeles County Fire Department, located at 335A East Avenue K-6; the Sheriff's Station, located at 1010 West Avenue J; the County Regional Planning and County Public Works Offices, located at 335 E. Avenue K-6; and the County Assessor's Office, which is located at 547 W. Lancaster Boulevard. The Antelope Valley Court Building, which houses the departments of Juvenile Justice, Administration, Municipal Court, Probation, Public Defender, Superior Court, County Clerk, Marshall's, and District Attorney is located at 1040 West Avenue J.

A county courthouse is being proposed on Avenue M to serve both the City of Lancaster and the City of Palmdale. The cost of the project will be between $50 and $80 million. Mechanisms for financing the project have not been identified at this time.

The Lancaster area is presently served by the High Desert Hospital, operated by Los Angeles County. The High Desert Hospital is located at 44900 North 60th Street West and consists of 106,685 total square feet of building. A new County hospital is being proposed within City boundaries. (See Public Health and Safety, Emergency Services and Facilities Section III-H for additional information.)

The Quartz Hill and Lancaster Library branches are part of the Los Angeles County Public Library system. The two libraries combined have a total of 22,450 square feet and approximately 23,000 books. The Lancaster Library plans to expand to three times its present size with construction beginning in the next two years. (See Living Environment, Cultural Facilities Section IV-F for additional information.)

The Mira Loma Detention Center is located on the corners of Avenue I and 60th Street West. The 54-acre medium to minimum facility is operated by the County of Los Angeles Sheriff's Department. The Mira Loma Facility has a population of 1,777 inmates, 924 of which are male adult inmates and 853 female adult inmates (Operations Sergeant, 1990). This population varies by a maximum of 50 inmates on a day-to-day basis. The capacity of Mira Loma, approved by the Federal Court, is 939 males and 854 females. This maximum is still considerably more than is recommended by state corrections officials.

All of the inmates at the Detention Center are serving County time varying from one day to one year for misdemeanor crimes. The average stay is roughly 45 days. This facility has many rehabilitation programs, including classes to assist inmates in obtaining their high school diploma, computer and business machines classes, computerized and traditional sign shop, sewing and pottery classes for women inmates, and the most successful program at the center: a carpentry workshop that teaches house framing. There is also a joint program with the Animal Control unit adjacent to the site where inmates are involved in grooming animals for adoption.

The Challenger Boys Camp, part of the Mira Loma Detention Facility, is a Treatment Bureau Facility for boys 16 to 18 years of age, operated by the Los Angeles County Probation Department. The six camps, approximately 115 acres in size, were named after the Challenger space shuttle astronauts. The camps opened in May, 1990, and are located south of Avenue I and west of 50th Street West. Each camp has a designed bed capacity of 110, equaling 660 for all six camps.

In addition to the above named facilities, the City of Lancaster is served by additional County facilities, including Animal Care/Control located at 5210 West Avenue I, and the Antelope Valley Senior Center located at 777 West Jackman, (discussed further in Living Environment, Social Services Section IV-G), and the County Assessor located at 1110 West Avenue J.

c. State of California Facilities

The City of Lancaster is served by the following State of California departments: Employment Development Center located in the 1400 block of West Avenue I; Highway Patrol in the 2000 block of West Avenue I; Department of Motor Vehicles, located in the 1100 block of West Avenue I; Parks and Recreation Department located in the 4500 block of West Avenue G; Rehabilitation Department located in the 43000 block of North 10th Street West; Department of Transportation (Caltrans) located in the 44000 block of North Sierra Highway; and Water Resources Department located in the 3100 block of East Avenue I.

A state prison is under construction on approximately 214 acres bounded by 60th Street West, Avenue I, 50th Street West, and Avenue J. The proposed project is planned for a total Design Bed Capacity (DBC) of 2,200 inmates. It would primarily house medium- and maximum-security inmates, with a support unit housing minimum-security inmates. Staffing requirements would be approximately 781, including Prison Industry Authority (PIA) staff.

The Antelope Valley Hospital Medical Center, located at 1600 West Avenue J, is the largest hospital in the high desert with 261 beds, and an additional 80 medical-surgical beds planned for the near future. The complex is a district hospital, which is similar to a school district with elected officials, and is operated by the State of California Department of Health Services.

d. Federal Facilities

United States Government Offices located in Lancaster include the following: Agriculture Department, Department of Air Force, Department of the Army, Department of Defense, Department of Health & Human Services, Social Security Administration, Federal Magistrate, Marine Corps, National Aeronautics and Space Administration, Department of Navy, United States Postal Service, and Department of Transportation. The Departments of the armed forces are located on the same premises in the 44000 block of 10th Street West. The Department of Agriculture is located in the 45000 block of 13th Street West and the Defense Department is in the 44000 block of 10th Street West. The Postal Service Main Office is located in 1000 block of Avenue J-2 and the Magistrate is in the 700 block of West Lancaster Boulevard. The Health & Human Services Department is located in the 300 block East of Avenue K-4. The National Aeronautics and Space Administration is located at Edwards Air Force Base.

2. ANALYSIS

The General Plan study area encompasses approximately 340 square miles. City Hall, near 10th Street West, is roughly at the center of the City, about 12 miles from the study area's easterly boundary and 10 miles from the westerly boundary. Current City commitments to annexations push the western City limit 11 miles from City Hall. The large area of the City combined with the near-capacity status of the current facility, indicate the need for future satellite City facilities. One major proposed planned development at 170th Street West (California Springs), will put an additional major activity center seven miles from the current city boundary of at 110th Street. The need for services generated by the growth anticipated within this area will govern the timing and location of satellite facilities. Parks, street maintenance, fire, and law enforcement facilities will also likely be some of the first planned public facilities to be considered in the outlying areas. In the future the City may also want to consider a civic center.

It is also likely that over time and as the City expands its boundaries through annexation, certain County responsibilities, such as social services, libraries, fire, and sheriff's facilities will need to expand with the expanding population of the Antelope Valley. The City of Lancaster will continue to house its fair share of these facilities.

In addition, the area including the Mira Loma Detention Center includes the Animal Control facility, land for the state prison, and the Challenger Boys Camp. The Sheriff's Department does not envision an expansion at the Mira Loma Detention Center and states that it is unlikely to expand in the near future. The Los Angeles County Sheriff's Department states that the Department is putting emphasis on expanding urban facilities, such as Lynwood and Pomona (Jail Construction Division, 1990). The Department has also recently completed an expansion of the Castaic facility and the Pitchess Honor Ranch, bringing the capacity of those facilities to over 4,000 beds. It is important to note, however, that the land which surrounds the facility is owned by the County and could be used for expanded operations, if necessary and appropriate.

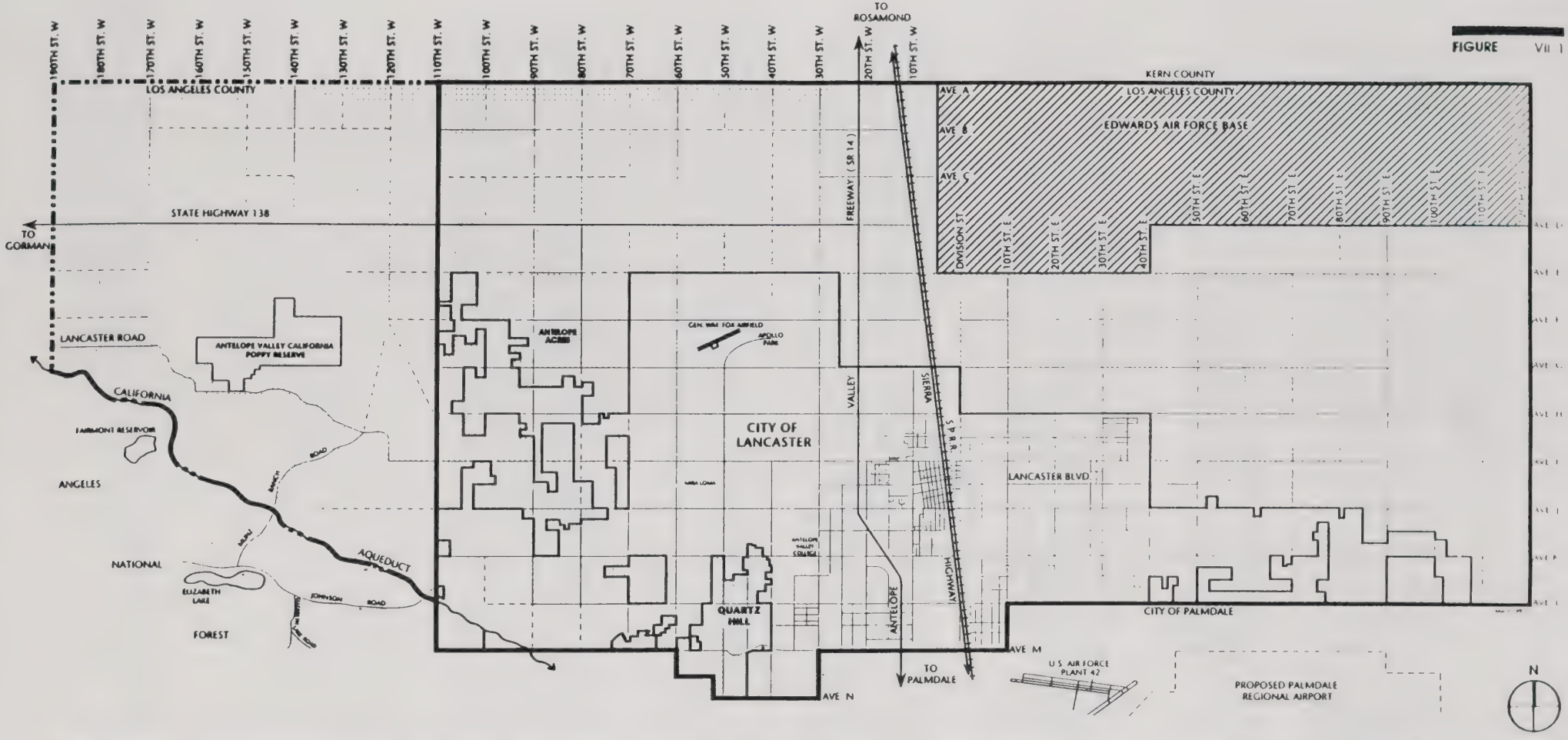
VII. STATE OF THE CITY REPORT
ECONOMIC DEVELOPMENT AND VITALITY

VII. ECONOMIC DEVELOPMENT AND VITALITY

INTRODUCTION

The Economic Development and Vitality Chapter analyzes Lancaster's local economy, conditions and trends of urban development, as well as fiscal impacts of this growth, in the Lancaster General Plan study area (see Figure VII-1).

FIGURE VII 1



PLANNING NETWORK

- CITY BOUNDARY
- INCORPORATED AREA
  As of October, 1990
- SPHERE OF INFLUENCE BOUNDARY
- EXPANDED STUDY AREA
- UNINCORPORATED
- EDWARDS AIR FORCE BASE

SOURCE: City of Lancaster Planning Department

AREA CONTEXT

CITY OF LANCASTER
GENERAL PLAN

A. ECONOMIC DEVELOPMENT

The purpose of this section is to present the economic conditions and trends of urban development in Lancaster. Economic considerations include the examination of the local economy, the demand patterns of urban development, and the recent effects of urban development upon municipal financial resources. These economic considerations are intended to serve as a basis to help shape a more meaningful and diverse general plan.

This presentation is intended to provide an understanding of the major economic trends and conditions which are most relevant to the formulation of a general plan. Emphasis is placed upon relating the economic aspects of urban development in Lancaster, rather than detailing each component part.

1. EXISTING SETTING

The goals of economic development are to increase the availability and quality of local jobs and to diversify the economy to reduce dependency upon regional and national economies. To help shape approaches for meeting these goals for Lancaster, it is necessary to better understand how local economies operate in general, and how the Antelope Valley subregional economy works in particular.

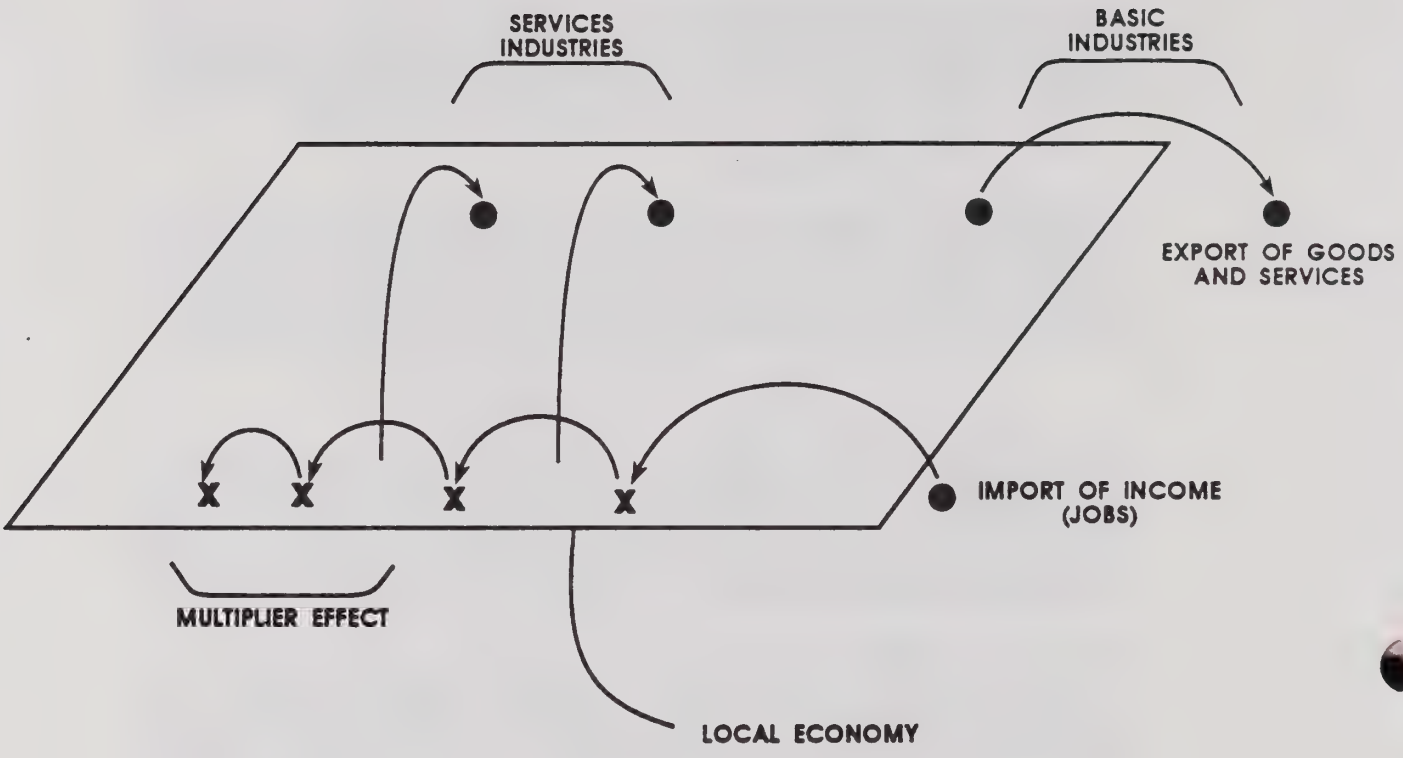
a. The Local Economy - Antelope Valley

The economy of Lancaster dominates the Antelope Valley subregion because it has the largest share of consumers. The Lancaster economy is, however, very closely linked to, not only Palmdale and the Antelope Valley subregion, but also the economies of metropolitan Los Angeles, Southern California, the United States, and the world. Thus, the Lancaster economy is part of a seamless economic fabric which links economic events in the City with those of other areas.

Since the Lancaster and Palmdale economies are so closely linked, they constitute a single local economy in the Antelope Valley subregion. The Antelope Valley subregion is defined as all of Los Angeles County north of the Angeles National Forest (and Acton) and consistent with the North Los Angeles subregion, as defined by the Southern California Association of Governments (SCAG). This subregion will be considered the local economy for this discussion.

A local economy can be conceived of as the movement of dollars among people and businesses in the form of consumer expenditures and business sales. Figure VII-A-1 depicts the movement of dollars through a local economy such as the Antelope Valley subregion. Local businesses produce goods and services, which are sold outside the local economy (basic industries) or inside the local economy (service industries). Consumers earn income from jobs and purchase goods and services from the outside economy (expenditure leakage) or within the local economy (multiplier effect).

FIGURE VII-A-1



LOCALLY PRODUCED GOODS AND SERVICES

X INCOME STREAM

SOURCE: AGAJANIAN & ASSOCIATES, 1991.

PLANNING NETWORK

DYNAMICS OF AN URBAN ECONOMY

CITY OF LANCASTER
GENERAL PLA

A simplified model of economic development is presented on Figure VII-A-2. As indicated by the solid lines, basic industries produce goods to sell outside of the local economy (exports) and bring in dollars to pay wages for local jobs. Local employees (labor) take their wages (household income) and purchase from local businesses, which create more local jobs in the service industries. This creates yet more local jobs, and the multiplier effect takes place, generating even greater local household income. Thus, for every job in a basic industry, several additional local jobs can be supported in the service industries. This traditional model of economic development suggests that local economies can be best stimulated by increasing basic industry employment. Furthermore, economic dependency can be best reduced by diversifying basic industries, the central source of economic strength and diversity. In short, jobs in basic industries help the economy most because they create even more local jobs.

A central feature of the Antelope Valley economy is its peripheral location in relation to the Los Angeles metropolitan area. Economic base characteristics in peripheral areas are not the same as stable and large economies such as the Los Angeles basin. Peripheral economies are less economically mature, meaning that they have proportionately less jobs and diversification than mature economies. Instead, peripheral economies usually grow principally from increased local consumer expenditures imported by new residents, rather than increases in basic industry employment. This peripheral model of economic growth is also presented in Figure VII-A-2 with the dashed lines. The differences between mature and peripheral economies will play a central role in considering general plan alternatives discussed at the end of this section.

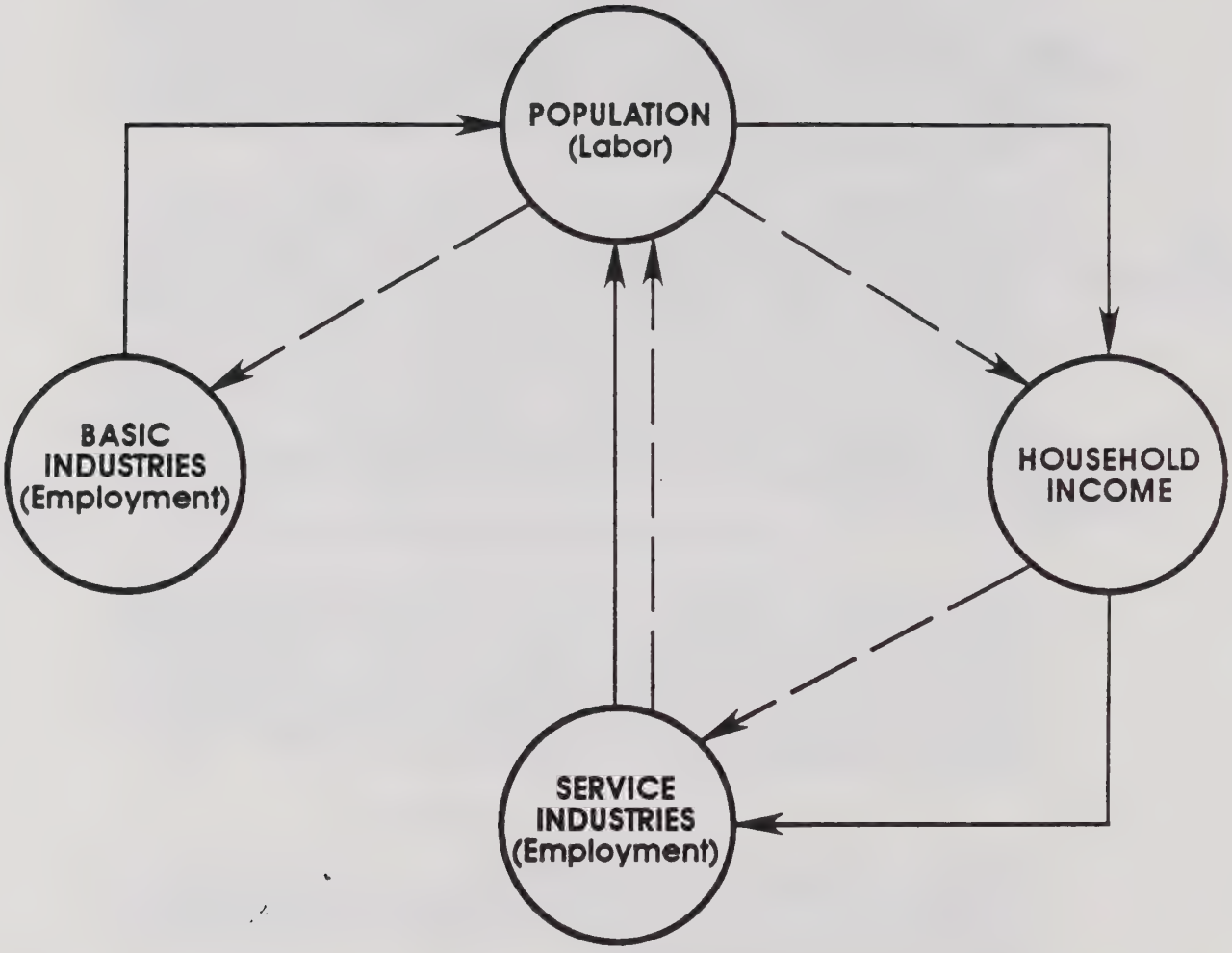
b. Characteristics of the Local Economy

The economy can best be conceived of in terms of local employment, local labor force and consumer expenditure trends and conditions. Local employment characteristics help describe the amount and types of jobs in the local economy. Labor force characteristics describe the occupations of employed persons, while consumer expenditure characteristics help describe the amount and types of purchases made by households in the Antelope Valley subregion. Together, they reflect all of the major elements of the local economy.

1. Employment Characteristics

As depicted in Figure VII-A-2, local employment is a major contributor of household income. The amount and kinds of employment in the local economy has great significance on the amount and location of land dedicated to commercial and industrial development.

Presently, aerospace research and aircraft production make up the largest firms in the Antelope Valley, as indicated on Table VII-A-1. The manufacturing firms can be considered basic industries, since they export products and import wages for their local employees. The non-manufacturing firms are jobs supported mainly by local consumer expenditures for government, medical and utilities services. The largest employer, Edwards Air Force Base (with an estimated 13,600 employees) along with the FAA, are the exceptions to this basic and service industry difference. This is because they import income like basic industries, but do not depend upon local consumer expenditure. They act like service industries with an emphasis on research services, rather than commercially manufactured products.



SOURCE: AGAJANIAN & ASSOCIATES, 1991.

Table VII-A-1
Major Employers in the Antelope Valley

Firm	Employees May 1988	Employees June 1989	Products
A. Manufacturing			
Lockheed Aircraft Co.	2,654	2,200	Commercial Aircraft
Rockwell International	2,355	1,950	Aircraft, Aerospace
U.S. Borax & Chemical Company	938	880	Chemicals
Northrop Aircraft Corporation	1,500	2,500[1]	Military Aircraft
NASA	473	700	Aircraft, Aerospace
California Portland Cement	208	163	Cement
Lancaster Business Park	980	1,559	Business/Industrial Park
B. Non-Manufacturing			
Edwards Air Force Base	13,300	13,617[2]	Aerospace Research
Antelope Valley Hospital Medical Center	1,100	1,200	Hospital (235 beds)
Lancaster School District	750	1,075	Elementary Schools
Antelope Valley Union High School District	850	920	High Schools
Lancaster Community Hospital	470	500	Hospital (135 beds)
Federal Aviation Administration	511	508	Air Traffic Control
High Desert Hospital	515	540	Hospital (273 beds)
General Telephone/SC Edison/Gas Co.	386	684	Public Utilities
Antelope Valley College	491	495	Education
Antelope Valley Bus Company	180	185	Transportation
Desert Inn Hotel	200	200	Hotel/Restaurant
City of Lancaster	370	434	Government

Source: Lancaster Economic Development Corporation (8/88) and (8/89); California Employment Development Department

1 Includes 1,600 Northrop employees and 900 contractors.

2 Includes 7,900 civilian employees.

With the exception of Northrop Aircraft Corporation, all of the other federally supported aerospace firms and commercial aircraft firms are expected to continue at their present employment levels into the long term future. The aerospace industry as a whole has long term growth potential, suggesting that, despite short term employment level swings, the industry will continue to be a major and steady component of the local economy. The long term demand for commercial aircraft, aerospace aircraft and defense aircraft will enable this manufacturing sector to

maintain current levels of employment. These roughly 21,500 current employees of the 6 aerospace and aircraft firms account for only about one-quarter of all employment in the local (Antelope Valley) economy. This ratio can be expected to decline over time as employment in service industries continue to rapidly grow.

As indicated on Table VII-A-2, there are approximately 78,700 jobs in the Antelope Valley, nearly all of which are civilian jobs. From this more complete view of the local economy, it can be observed that basic industries accounted for 27.8 percent of all jobs (includes manufacturing, military and agriculture). The service sector of the local economy accounts for 72.2 percent of the economy. We can observe from this ratio that there are over two service jobs for every basic job in the Antelope Valley. This ratio reflects the multiplier effect in the local economy, estimated at 2.60 service jobs for each basic job.

Table VII-A-2
Antelope Valley Employment By Industry
(January, 1990)

Industry	Estimated Employment	Percent Distribution
Agriculture	580	0.7%
Contract Construction	6,100	7.8%
Manufacturing	16,250	20.6%
Trans/Comm/Utilities	3,160	4.0%
Wholesale/Retail Trade	18,352	23.3%
FIRE[1]	3,910	5.0%
Services	19,470	24.7%
Civilian Government	5,108	6.5%
Civilian Employment	72,930	92.6%
Military Employment	5,800	7.4%
Total Employment	78,730	100.0%

Source: Antelope Valley Labor Market Study (5/90), Exhibit IV-1; State of California, Employment Development Department; AGAJANIAN & Associates.

1 Finance, Insurance and Real Estate

It can also be observed that retail employment, personal services, construction and government make up the majority of the jobs in the area. Thus, we may find that the largest share of local jobs come from providing services to the local population.

2. Labor Force Characteristics

The labor force employed in the Antelope Valley is comprised mainly of professional, technical, official, and managerial occupations employed at aircraft and allied manufacturers, as indicated on Table VII-A-3. Sales, clerical, craft, and service occupations account for a third of the local employed labor force.

Farming, laborers, and the unemployed account for the remaining occupations as reported in the Antelope Valley Labor Market Study completed in May, 1990.

Table VII-A-3
Antelope Valley Employed Adult Occupational Profile
(March, 1990)

Occupation	Estimated Labor Force[1]	Percent Distribution
Professional/Technical	33,318	44.6%
Managers/Officials	10,683	14.3%
Sales Workers	5,304	7.1%
Clerical	6,873	9.2%
Crafts Workers	6,798	9.1%
Operatives	2,540	3.4%
Services	6,051	8.1%
Laborers/Farmers	3,136	4.2%
Total All Occupations	74,703	100.0%
Unemployed	8,323	6.9%

Source: Antelope Valley Labor Market Study (5/90); Lancaster Economic Development Corporation; AGAJANIAN & Associates.

1 Based upon 66.0% of the estimated 113,187 persons in the labor force.

The occupations of the locally employed labor force are not the same as that of workers who commute to jobs outside the local economy. These commuters account for an estimated one third of all employed persons in the Antelope Valley.

The commuters' occupational characteristics differ from the local labor force, as illustrated on Table VII-A-4. Commuters are far more likely to be operatives, managerial, and craftsman occupations than the locally employed labor force. Commuters with managerial, official, professional, and technical occupations compose about the same proportion of the labor force as those of the locally employed. Service, clerical, and sales occupations are the least represented by the commuting labor force.

Commuters represented 34.0 percent of all employed adults surveyed in March, 1990, as indicated on Table VII-A-4. Commuters as a group can be characterized as being mostly primary wage earners, male, and members of households with higher incomes.

These commuters drive over 30 minutes one way and are employed principally in the San Fernando Valley and the Los Angeles basin by mainly transportation, communications and utility firms. There does not appear to be a sizable number of residents commuting to manufacturing or retail jobs.

Table VII-A-4
Antelope Valley Commuter Characteristics[1]
(March, 1990)

Personal Characteristics		Occupational Characteristics[2]		Industry Characteristics[2]	
All employed residents	34.0%	Professional/Technical	28.0%	Agriculture	13.0%
Household Wage-Earner[3]		Manager/Officials	35.0%	Mining/Construction	23.0%
Primary	55.0%				
Secondary	45.0%	Sales Workers	11.0%	Manufacturing	49.0%
Gender[3]		Clerical	26.0%	Trans/Comm/Utilities	32.0%
Male	6.0%				
Female	44.0%	Craft Workers	31.0%	Wholesale Trade	36.0%
Education		Operatives	46.0%	Retail Trade	19.0%
High School	29.0%				
Some College	45.0%	Services	24.0%	FIRE[4]	9.0%
College Graduate	26.0%				
				Services	31.0%
Household Income		All Occupations	34.0%		
Below $20,000	3.0%			Government	33.0%
$20-$40,000	26.0%				
$40,000 & Over	71.0%			Military	18.0%
					34.0%

Source: Antelope Valley Labor Market Study (5/90); Antelope Valley Labor Market Study (4/87); AGAJANIAN & Associates

1 All employed persons commuting greater than 30 minutes one-way.
2 Percent of category commuting greater than 30 minutes one-way.
3 Based upon 4/87 report.
4 Finance, Insurance and Real Estate.

Thus, local employment growth in the transportation, communications, and utility firms would help reduce the number of commuters. Similarly, formation of local cottage industries with electronic links to firms outside the subregion would help reduce second wage earner commuting as well.

3. Local Expenditure Patterns

Expenditures in the Antelope Valley are largely made by either the local population or persons passing through (tourism). The amount and type of these expenditures are indicated on Table VII-A-5. By comparing the average spending by households in Lancaster to those in the Antelope Valley (Lancaster and Palmdale combined) and Los Angeles County as a whole, we can better characterize the service industries of Lancaster.

It can be observed that Antelope Valley households spend less locally than the Los Angeles County households, in terms of both taxable sales from all retail stores and all other outlets. Antelope Valley households spend less in every category of expenditures except drug stores, food stores and building materials. This feature reflects the pattern of peripheral economies which show strong sales in neighborhood commercial uses and building materials to supply local construction and development. Local expenditures in the remaining community and regional level commercial uses all show that there is some exporting (or leakage) of local incomes for these goods and services.

Table VII-A-5
Per Household Taxable Retail Expenditures
(1989[1])

Retail Outlets	City of Lancaster	Antelope Valley[2]	Los Angeles County
Apparel Stores	$706	$376	$1,012
General Merchandise Stores	$4,056	$1,997	$2,071
Drug Stores	$606	$375	$352
Food Stores	$6,304	$1,300	$1,150
Liquor Stores	$173	$126	$223
Eating and Drinking Places	$2,125	$1,389	$2,107
Home Furnishings/Appliances	$1,122	$650	$823
Building Materials	$2,445	$1,196	$1,058
Auto Dealers and Supplies	$5,917	$2,803	$3,036
Service Stations	$1,265	$986	$1,254
Other Retail Stores	$2,393	$1,183	$2,447
Retail Stores Total	$22,699	$12,382	$15,533
All Other Outlets	$4,616	$2,704	$8,435
Total All Outlets	$27,315	$15,086	$23,968

Source: AGAJANIAN & Associates

1 Reflects most current expenditure information (1-1-89).
2 Includes combined retail sales of Lancaster and Palmdale.

Table VII-A-5 also indicates that Lancaster is, overall, experiencing far greater local expenditures per household than Antelope Valley and Los Angeles County households. This occurs because many households throughout the Antelope Valley shop in Lancaster. Even though Lancaster is the dominant node of retail expenditures within the Antelope Valley, Lancaster residents do not fully support local retail stores. Thus, we may observe, that Lancaster is the dominant commercial center in a subregion which is experiencing a net exportation of household income for community and regional level retail expenditures.

These expenditure patterns will change over time. Auto sales and general merchandise sales will decrease in Lancaster in the near term as the new auto mall and regional shopping center are opened in Palmdale. However, the development of the Power Center, auto mall, and a regional shopping center in Lancaster, will increase retail sales substantially in the City.

The amount and source of the retail sales leakage can be seen on Table VII-A-6. These estimates reflect the amount of surplus (import) expenditure or leakage (export) of retail expenditures. The table reveals that the Antelope Valley is currently exporting over $500,000,000 in retail sales annually. Of this leakage,

Table VII-A-6
Estimated Retail Sales Leakage [1]
($000's, 1989[2])

Retail Outlet	City of Lancaster	North Antelope Valley [3]	South Antelope Valley [4]	Antelope Valley
Apparel Stores	($9,013)	($20,068)	($20,833)	($41,372)
General Merchandise Stores	$58,395	$32,963	($34,459)	($4,811)
Drug Stores	$7,457	$3,223	($1,538)	$1,470
Food Stores	$151,640	$8,087	$1,914	$9,805
Liquor Stores	($1,453)	($3,907)	(2,389)	($6,288)
Eating and Drinking Places	$512	($23,212)	($23,067)	($46,763)
Home Furnishings/Appliances	$8,806	($768)	($9,926)	($11,256)
Building Materials	$40,818	$27,430	($16,377)	$9,027
Auto Dealers and Supplies	$84,744	$47,493	($57,462)	($15,211)
Service Stations	$337	($13,779)	($3,961)	($17,447)
Other Retail Stores	($1,580)	($29,044)	($51,257)	($82,240)
Retail Stores Total	$210,838	$28,419	($219,354)	($205,085)
All Other Outlets	($112,359)	($203,137)	($167,690)	($373,027)
Total All Outlets	$98,479	($174,718)	($387,044)	($578,112)

Source: AGAJANIAN & Associates

1 Adjusted for household income differences.
2 Reflects most current retail expenditure information (1-1-89).
3 Includes Antelope Valley subregion north of "M" Avenue.
4 Includes Antelope Valley subregion south of "M" Avenue.

retail sales in stores located south of Avenue "M" are losing the greatest share of this amount ($387,000,000), while stores in northern Antelope Valley are losing about $175,000,000 annually. As discussed earlier, the City of Lancaster appears to be a net importer of retail sales for mainly food stores, auto dealers and supplies, general merchandise and building materials.

Thus, these retail leakage estimates suggest that opportunities for near term retail development lie mainly in capturing Antelope Valley leakage for specialty type retail stores (other retail), apparel stores, eating and drinking establishments, and auto related uses. There is also a very large opportunity to promote retail sales goods and services from office and industrial firms (other outlets) by attracting firms with high point of sale taxable revenues (e.g. office equipment sales, spa manufacturing).

The recent trends in retail firm establishment growth confirm the need and demand for more specialty retail stores (other retail), eating and drinking places, and other retail outlets. As indicated on Table VII-A-7, these three categories of outlets have accounted for 621 of the 662 new outlets in Lancaster and 1,118 of the 1,205 new outlets in the Antelope Valley.

Table VII-A-7
Number of Retail Establishments

Retail Outlet	City of Lancaster 1989 [1]	1980 [2]	80-89	Antelope Valley[3] 80-89
Apparel Stores	50	41	9	22
General Merchandise Stores	17	22	-5	-4
Drug Stores	17	13	4	7
Food Stores	45	35	10	20
Liquor Stores	13	15	-2	1
Eating and Drinking Places	143	94	49	88
Home Furnishings/Appliances	62	49	13	29
Building Materials	34	33	1	4
Auto Dealers and Supplies	76	67	9	9
Service Stations	32	30	2	3
Other Retail Stores	251	148	103	170
Retail Stores Total	740	547	193	345
All Other Outlets	1,281	812	469	860
Total All Outlets	2,021	1,359	662	1,205

Source: AGAJANIAN & Associates

1 As of 1-1-89.
2 As of 12-31-80.
3 Includes cities of Lancaster and Palmdale.

c. Jobs/Housing Balance

In this review of the local economy it is valuable to assess the relationship between local jobs and the labor force. The jobs/housing ratio expresses the degree to which there are jobs for each local household. This ratio is estimated at 0.90 for the Antelope Valley, as indicated on Table VII-A-8. This means that there are 0.90 jobs for every residential unit in the subregion. If all of the currently employed residents were employed in the area (no commuters), a jobs/housing ratio of 1.46 would have to be achieved. Choices regarding the most desirable level for the jobs/housing ratio will have an important impact upon the amount and type of commuters in the Antelope Valley.

Table VII-A-8
1989 Antelope Valley Jobs/Housing Balance

Population	224,230
Housing Units	83,352
Labor Force (estimate)	121,510
Local Employment	74,703
Labor Participation Rate	54.2%
Percentage Commuting[1]	34.0%
Job/Housing Ratio	**0.896**
Theoretical Jobs/Housing Balance	1.458

Source: Lancaster Economic Development Corporation (8/89); Antelope Valley Labor Market Study (5/90); AGAJANIAN & Associates.

1 Antelope Valley Labor Market Study, May 1990.

From this brief review of the local economy and its character, we can observe, that in terms of attracting jobs to the subarea, basic industry (manufacturing) jobs best meet local needs to diversify and strengthen the local economy. Service industry (retail, office) jobs are not, as a whole, higher paying jobs, but in the peripheral economy may provide a large and growing source of new local jobs. The amount and type of new jobs attracted to the local economy will have a direct effect upon the jobs/housing balance and the degree of commuting experienced by the local labor force.

2. ANALYSIS

From the review of the local economy and its character, we can observe that, in terms of attracting jobs to the subarea, basic industry (manufacturing) jobs best meet local needs to diversify and strengthen the local economy. Service industry (retail,office) jobs are not, as a whole, higher paying jobs, but in the peripheral economy may provide a large and growing source of new local jobs. The amount and type of new jobs attracted to the local economy will have a direct effect upon the jobs/housing balance and the degree of commuting experienced by the local labor force.

B. URBAN DEVELOPMENT

1. EXISTING SETTING

a. Urban Growth in Lancaster

Urban development in the Antelope Valley has experienced considerable growth in the past decade. This growth has had important impacts upon the financial resources of the City to provide municipal services and needed capital improvements. Choices regarding the amount, location and rate of future urban development will have an impact on the means and the ability of the City to pay for new development. It is important, therefore, to consider just what kind and how much urban development has taken place in Lancaster.

Recent in-migrants to the Antelope Valley are characterized on Table VII-B-1. These new households have recently moved in to purchase a new home. The adult in-migrants characterized in Table VII-B-1 tend to reflect the same general income distribution of residents who have lived in Lancaster since 1983, and appear to have slightly higher median household incomes. Recent in-migrants tend to come from the same general areas, as the 1980 residents, namely from Los Angeles (45.0 percent), Other U.S. (20.0 percent), and Other California (16.0 percent) locations. As can be expected, recent in-migrants tend to commute to work more to San Fernando Valley and the Los Angeles Basin and work less in Lancaster. These characteristics suggest that 40.0 percent of recent in-migrants move in and commute to work over 30 minutes one way. Over about a seven year period, the amount of commuting drops to 12 percent, as local residents find local jobs.

As indicated on Table VII-B-2, Lancaster experienced rapid urban development through most of the 1980s. Overall development has increased every year except in 1982, when high interest rates restrained development throughout the national economy. The majority of this development has been residential in nature, increasing its share of overall development since 1980 until it peaked at 93.4 percent in 1989 and then receded to 77.8 percent of assessed valuation in the first quarter of 1990. Clearly, residential growth is powering Lancaster's urban development.

Industrial development has represented only a small share of assessed valuation, rising only modestly to 1.8 percent in 1984. Commercial development needed to house service industries grew rapidly in the early 1980's but declined to a low of 6.1 percent of all assessed valuations in 1989. Commercial development accounted for 22.2 percent of first quarter 1990 development valuation, most of which was used to develop retail stores.

Retail development accounts for the largest share of commercial development, with office demand only slightly lower. Hotel and auto related uses do not appear to be adding significant amounts of new commercial development in Lancaster. Thus, we can note that Lancaster has been growing rapidly since 1982, with predominantly residential uses. Commercial development was overbuilt in the early eighties but has recently regained increased interest, particularly for retail and office development. Industrial development has slowed since the mid 1980's but has increased in its share of total annual development valuation since 1986.

Recent development, since 1987, indicates over 744,000 square feet of retail development has been approved, while 45,000 square feet was approved for office uses. Over 88,000 square feet of industrial development was also approved in 1988 for light manufacturing buildings. In this same year, 2,401 residential unit permits were issued for development.

The pattern of recent development demand has changed little in 1989. A record number of 3,967 residential unit permits were issued for development in Lancaster, while 273,000 square feet of retail space was approved. Industrial development approvals increased sharply to nearly 170,000 square feet of new industrial building. Only 17,000 square feet of office space was approved for development in 1989. Thus, we can note that recent trends of development suggest the continued predominance of residential development in Lancaster, with commercial retail and industrial uses providing only a small share of the overall development. However, the proposed regional shopping mall and the Lancaster Auto Center may soon add a significant amount of retail space in the short term future.

b. Redevelopment

In addition to the substantial amount of private sector development, significant recent development in the City has also been stimulated by the Lancaster Redevelopment Agency (LRA). Since 1979 the LRA has created six project areas which cover approximately 40 square miles of the City's incorporated land area and nearly all of the urbanized area within the City. These six LRA project areas include:

- Residential Redevelopment Project (1979)
- Central Business District Redevelopment Project (1981)
- Fox Field Redevelopment Project (1982)
- Amargosa Redevelopment Project (1983)
- Redevelopment Project Number 5 (1984)
- Redevelopment Project Number 6 (1989)

A map showing the boundaries of these areas is included in the Physical Development Chapter. Most of the redevelopment activities have involved the development of commercial, industrial, housing, and infrastructure facilities. Redevelopment activities have included a variety of public facility projects and assistance to stimulate private development within the project areas. Public projects include funding the City Hall, the City Maintenance Yard, Lancaster Boulevard Revitalization, Museum Art Gallery/Performing Arts Center, Downtown Public Parking facilities, Lancaster Community Shelter, Sierra Highway improvement, and miscellaneous drainage, street and park land improvements. Private/public projects assisted by the LRA have included construction of Valley Central Power Center (Costco, Home Club, WalMart and Food 4 Less), the Antelope Valley Auto Mall, Target Center, Lancaster Boulevard Revitalization, and various industrial developments, including assistance to the Lancaster Economic Development Corporation. In addition, the LRA has assisted in the development of two industrial parks and many new, low income, senior residential units at several sites throughout the City.

Table VII-B-1
Antelope Valley Adult In-Migrant Characteristics[1]

A. In-Migrant Profile (5/90)	All Adult Residents	Recent In-Migrant	B. Origin (4/87)	All Adult Residents	Recent In-Migrant	C. Place of Work (4/87)	All Adult Residents	Recent In-Migrant
Household Income								
< $19,999	14.0%	10.0%	Los Angeles County	41.0%	45.0%	Lancaster	34.0%	20.0%
$20-$29,999	17.0%	18.0%	Orange County	3.0%	3.0%	Palmdale	22.0%	24.0%
$30-$39,999	21.0%	23.0%	Riverside County	1.0%	2.0%	Edwards	8.0%	8.0%
$40-$49,999	17.0%	19.0%	Ventura County	4.0%	5.0%	San Fernando Valley[2]	8.0%	16.0%
$50-$74,999	21.0%	20.0%	San Bernardino County	4.0%	5.0%	Los Angeles Basin[3]	9.0%	12.0%
$75,000 & Over	10.0%	10.0%	Kern County	3.0%	2.0%	Other[4]	11.0%	12.0%
			Other California	13.0%	16.0%			
Median Income	$39,100	N/A	Other U.S.	24.0%	20.0%			
			Other	-	1.0%			
Age of In-Migrants			Born Here	7.0%	0/0%			
< 25	8.0%	9.0%	N/A	1.0%	1.0%			
25-34	31.0%	42.0%						
35-44	25.0%	23.0%						
45-54	15.0%	12.0%						
55-64	12.0%	9.0%						
65 +	9.0%	5.0%						
Average Age	39.4	N/A						

Source: Antelope Valley Labor Market Study (5/90); Antelope Valley Labor Market Study (4/87); AGAJANIAN & Associates.

1 Recent In-Migrants are those who have moved to the Antelope Valley in the past seven years.

2 Includes Van Nuys, Chatsworth, Granada Hills, Tarzana, Woodland Hills, Universal City, North Hollywood, San Fernando, Sylmar, Sun Valley, Mission Hills, and Northridge.

3 Includes Los Angeles, Long Beach, Inglewood, Tarzana, El Segundo, Glendale, Burbank, and Santa Monica.

4 Includes California City, Rosamond, Quartz Hill, Baron, Mojave, Littlerock, Acton, and Llano.

Table VII-B-2
Lancaster Building Permit Valuation[1]

Year	Total Valuation ($000's)	Land Uses			Commercial Uses			
		% Res	% Ind	% Com	Retail	Office	Hotel	Auto
1980	$40,436	72.0%	2.7%	25.3%	24.9%	0.4%	0.0%	0.0%
1981	$46,839	76.6%	0.0%	23.4%	0.0%	23.4%	0.0%	0.0%
1982	$37,455	79.2%	0.9%	19.9%	10.1%	5.8%	3.8%	0.2%
1983	$66.829	88.0%	1.1%	10.9%	5.5%	5.0%	0.0%	0.4%
1984	$72,580	88.1%	1.8%	10.1%	2.8%	4.9%	2.4%	0.0%
1985	$161,379	90.4%	0.9%	8.7%	3.7%	2.6%	2.4%	0.0%
1986	$174,538	91.4%	0.0%	8.6%	6.6%	1.6%	0.0%	0.4%
1987	$187,762	91.0%	0.1%	8.9%	6.6%	1.1%	0.2%	1.0%
1988	$254,922	85.6%	0.3%	14.1%	9.5%	4.6%	0.0%	0.0%
1989	$434,672	93.4%	0.5%	6.1%	4.8%	1.3%	0.0%	0.0%
1990 (1Q)	$55,543	77.8%	0.0%	22.2%	18.3%	2.9%	0.0%	1.0%

Source: U.S. Department of Commerce, Construction Statistics Division; City of Lancaster Building and Safety Department (1989-1990 (1Q)); AGAJANIAN & Associates.

1 Covers only new private sector construction. Excludes public, quasi-public and renovation permit valuations.

The LRA will continue to play an important role in stimulating new development. A regional mall site is now being prepared by the LRA to accommodate high-end department store anchors and many smaller supporting stores. Such a project may be completed within a five to eight year time frame, depending upon the strength of the local economy and the rate of residential growth in the Antelope Valley. Industrial development at Fox Field is also being assisted in cooperation with the Lancaster Economic Development Corporation and Los Angeles County. Industrial development at Fox Field is not expected to occur for at least five years, again depending on the strength of the local economy. The LRA is, however, continuing to acquire and assist in the preparation of new industrial sites within the City. In addition to commercial and industrial development, the LRA is assisting in the production of new housing for the elderly, implementation of a housing rehabilitation program, and other housing related activities for the residents of the City.

The LRA has assisted in the development of new public facilities, commercial stores, residential units, and industrial sites throughout the City. However, we must note that the LRA plays just as significant a role in rehabilitating blighted areas and upgrading developed areas. Providing commercial rehabilitation loans, adding new parking lots in the downtown, preparing under utilized sites for redevelopment, and other related programs all contribute toward stimulating quality development in the City.

2. ANALYSIS

In the future, the amount and type of land use development will depend largely on the amount of residential growth allowed. Retail land use demand is directly related to population growth and reduction of retail sales leakage. Office demand is linked to the growth of population, but significant gains in office development would require efforts to attract large back office tenants to the subregion. Such back office tenants are those firms which utilize a large number of clerical employees without the need for high profile corporate locations. Back office tenants can include insurance claims processing offices, bank card service processing offices, airline reservation offices, health records storage offices, and similar office oriented operations requiring large clerical staffs. Industrial growth is only partially linked to population growth, mainly through the availability of a qualified labor force. Consequently, significant industrial development will require continued efforts to attract firms to the subregion or the City.

Thus, the amount of future urban development is going to depend largely upon the amount of residential development permitted within the City and the subregion. Retail development will grow in proportion to residential growth. Industrial, office and other commercial uses will experience significant growth only with strong local efforts to attract large firms.

C. FISCAL IMPACTS OF DEVELOPMENT

1. EXISTING SETTING

As described in the previous section, rapid residential growth in Lancaster has added a considerable number of new residents. These new homes have increased the need for streets, community facilities, drainage and related capital improvements. In addition, the new residents create increasing demands upon City services, which are provided by the City. Who pays how much for these added capital improvements and service costs is the central question in this section.

a. Municipal Revenues

The Lancaster municipal budget receives revenues from a broad range of sources in order to pay for municipal service costs and capital improvements. The amount of revenues generated annually will limit available financial resources of the City to provide needed services, such as community safety and recreation programs, at higher or lower levels of service. Therefore, the municipal revenue outlook is an important consideration.

Table VII-C-1 describes the broad sources of Lancaster municipal revenues over the past five fiscal years, while Table VII-C-2 details the major sources. The general fund categories reflect that portion of revenues which can be spent by the City in any way to promote the public welfare. Special revenues are limited for use on roadways, parks, residential rehabilitation, and similar, usually capital, improvements. Capital projects revenues are obtained from the sale and use of property (Redevelopment Agency), mortgage bond revenues and related sources of revenues. Debt service revenues represent fees collected by the City to administer mortgage revenue bonds.

The general fund constitutes the real source of revenues to pay for ongoing City services, rather than capital improvements. This fund accounts for over $26,373,000 of the $42,569,000 in total revenues received by the City in fiscal year 1989-1990. As indicated on Table VII-C-2, there are many sources of revenues to the City budget. Those revenues contributing most to the general fund are the licenses and permit fees ($11,208,000), sales and use taxes ($9,300,000), and incremental property taxes ($3,940,000). Special revenue sources are derived mainly from state subventions and grants ($5,477,000) and motor vehicle license fees ($2,940,000).

These sources of revenues have changed over the past five years as the City experienced an increasing rate of population and development growth. As indicated on Table VII-C-2, overall revenues have increased by 69.1 percent, a growth rate faster than the 46.4 percent population growth of the City in the same period. Large revenue increases have occurred in every revenue category except the three smallest (fines and forfeitures, charges for current services, and bond fees). The largest proportional increase in revenues has occurred from property taxes to the City and the Redevelopment Agency, tripling in size over the past five years. Licenses and permits, sales and use taxes, other taxes and subventions, and grants have also increased substantially over the past five years. These growing revenue sources are linked closely with population growth and can, therefore, be expected to continue growing as the City grows. Thus, we may note that the City's revenues have grown by two-thirds over the past five years, as the City grew by half in both population and development.

Table VII-C-1
Combined Lancaster Budget Statement[1]

Budget Item[2]	Fiscal 85-86 (in $)	Fiscal 86-87 (in $)	Fiscal 87-88 (in $)	Fiscal 88-89 (in $)	Fiscal 89-90 (in $)
Revenues					
General Fund	17,649,860	19,526,287	18,273,562	25,664,650	26,373,398
Special Revenues	5,083,505	5,378,953	9,015,544	10,435,661	10,733,023
Debt Service	55,031	99,588	231,994	403,016	400,000
Capital Projects	2,378,989	3,836,893	10,798,530	6,401,356	5,062,300
Total Revenues	25,167,385	28,841,721	38,319,630	42,904,683	42,568,721
Expenditures					
General Fund	10,226,305	12,786,636	16,489,978	18,914,075	26,497,435
Special Revenues	892,909	743,034	178,945	284,869	246,659
Debt Service	492,398	1,321,558	1,370,025	3,445,521	4,723,100
Capital Projects	6,179,297	16,561,331	28,490,400	15,502,099	41,496,867
Total Expenditures	17,790,909	31,412,559	46,529,348	38,146,564	72,964,061
Unreserved Fund Balance	38,082,840	42,171,401	49,194,243	54,131,703	35,340,671

Source: Lancaster City Budget documents; AGAJANIAN & Associates

1 Covers the City of Lancaster; Lancaster RDA; Lancaster Community Services Foundation; and Lancaster Industrial Development Authority.

2 All revenues and costs are actual, except fiscal 1989-1990, which is adopted.

Table VII-C-2
Total Lancaster Revenue By Source[1]

Source of Revenues[2]	Fiscal 85-86 (in $)	Fiscal 86-87 (in $)	Fiscal 87-88 (in $)	Fiscal 88-89 (in $)	Fiscal 89-90 (in $)
Sales and Use Taxes	7,036,092	7,277,490	8,267,477	9,217,762	9,300,000
Incremental Property Taxes	1,275,739	2,413,543	2,982,055	3,848,200	3,940,000
Other Taxes	2,176,786	2,646,680	3,863,347	4,414,508	4,368,000
Subventions and Grants	3,700,649	3,859,482	3,420,608	4,088,083	5,476,614
Licenses and Permits	4,693,281	5,355,903	6,293,930	11,298,443	11,208,000
Motor Vehicle License Fees	1,889,294	1,816,870	2,353,891	3,091,557	2,940,000
Fines and Forfeitures	571,938	540,445	667,728	466,253	300,000
Charges for Current Services	495,664	587,218	420,419	596,699	587,250
Mortgage Revenue Bond Fees	416,145	85,758	358,279	184,850	283,000
Use of Money and Property	2,531,273	3,559,219	9,195,597	4,862,574	3,106,500
Other	380,524	699,113	496,299	835,754	1,059,357
Total Revenues	25,167,385	28,841,721	38,319,630	42,904,683	42,568,721

Source: Lancaster City Budget documents; AGAJANIAN & Associates.

1 Covers the City of Lancaster; Lancaster RDA; Lancaster Community Services Foundation; and Lancaster Industrial Development Authority.

2 All revenues are actual, except fiscal 1989-1990, which is adopted.

b. Municipal Service Costs

The City budget incurs variable costs to provide recurring (annual) services and capital improvements. The four major sources of recurring current expenditures are general government, public safety, public services, and cultural and recreational services. As indicated on Table VII-C-3, these current expenditures account for $26,744,094 of the City's annual costs in fiscal 1989-1990. This amount represents a doubling of the current expenditures from the fiscal 1985-1986 costs of $13,376,536. Among these current expenditure costs, public safety costs and general government costs have increased the most sharply since fiscal 1985-1986. We may note that current expenditure costs have increased at a faster rate than both City revenues and population.

Total expenditures have varied considerably over the past five years, in large part due to the amount of expenditures for capital projects, such as freeway overpasses, arterial roadway improvements, civic buildings, redevelopment projects and related long term, high cost projects. This expenditure is highly variable because capital outlays reflect the combined need for capital improvements in light of available revenues that can be used for capital improvements. Capital project expenditures rise and drop annually, according to the revenues available for any given year. The capital outlays presented on Table VII-C-3 indicate the amount of actual expenditures for capital improvement projects and reflect the growing need for improved roadways, parks, drainage systems and municipal buildings.

Table VII-C-3
Total Expenditures By Source[1]

Sources of Expenditures[2]	Fiscal 85-86 (by $)	Fiscal 86-87 (by $)	Fiscal 87-88 (by $)	Fiscal 88-89 (by $)	Fiscal 89-90 (by $)
Current Expenditures					
General Government	2,233,615	4,272,285	3,684,648	6,572,890	7,307,153
Public Safety	3,145,782	3,517,340	4,128,637	4,526,128	8,000,000[3]
Public Services	5,903,213	5,320,923	5,039,605	6,675,158	6,700,029
Cultural and Recreational	2,093,926	2,688,472	3,190,015	3,661,201	4,490,253
Capital Outlay	3,921,975	14,291,981	29,116,418	13,265,666	41,496,867
Debt Service - Principal	0	0	90,000	300,000	0
Debt Service - Interest	492,398	1,321,558	1,280,025	3,145,521	4,723,100
Total Expenditures	17,790,909	31,412,559	46,529,348	38,146,564	72,964,061

Source: Lancaster City Budget documents; AGAJANIAN & Associates.

1 Covers the City of Lancaster; Lancaster RDA; Lancaster Community Services Foundation; and Lancaster Industrial Development Authority.

2 All expenditures are actual, except fiscal 1989-1990, which is adopted.

3 Increased to reflect actual current cost.

The principal and interest debt service expenditures presented on Table VII-C-3 indicate that the City and the Redevelopment Agency have issued indebtedness to support municipal improvements, redevelopment and revitalization, mainly in the form of bonds. The amount of the City's indebtedness is indicated by the growing amount of interest payments over the past five years. These interest payments have increased from $492,000 to $4,723,000 since fiscal 1985-1986. Principal payments appear negligible over the past five years, but will likely account for increasing expenditures as the bonds and other debt instruments are retired.

We may note that total expenditures has experienced a rapid rate of growth. However, we can observe that the largest elements of this growth are in capital outlays and interest on debt. These two sources of expenditure have increased nearly tenfold since fiscal 1985-1986. By comparison, current expenditures have only doubled.

c. Municipal Capital Improvements Costs

The City is responsible for upgrading arterial streets, recreation facilities, administrative facilities, safety facilities, and drainage facilities. These capital improvements are paid for from a number of special revenues, capital project revenues, and bonded indebtedness. Over the past five years a total of $67,800,000 has been budgeted for municipal capital improvements, as indicated on Table VII-C-4. Streets were allocated two-thirds of these capital costs, accounting for over $8,700,000 annually over the past five years. Parks and utilities account for the other major capital expenditure items. Thus, we may conclude that the largest capital costs are linked directly to the needs generated by urban development.

The annual allocations presented on Table VII-C-4 reflect the amounts put aside by the City and the Redevelopment Agency for capital projects. These allocated funds may not all be spent in the given year, but may be set aside in a capital projects fund until it is completely used-up in subsequent years. For this reason, the capital projects expenditures on Table VII-C-3 (the money spent) do not match the allocated capital projects funds on Table VII-C-4 (money set aside). The time lag between allocation and expenditure of capital projects funds should not distort the distribution of capital improvement revenues for the specific improvement categories presented on Table VII-C-4.

2. ANALYSIS

From this brief review of the fiscal impacts of development in Lancaster, we can observe that the amount and type of future development will continue to have a direct effect upon the financial resources of the City. The amount, type, phasing, and location of future residential development will have the greatest impact upon local capital needs and increasing operating service costs. Retail, hotel and industrial development will have a positive contribution to the City's financial resources, but may require funding to aggressively attract the desired development. The balance between residential and revenue generating non-residential land uses will determine the long term health of the City's financial resources.

Table VII-C-4
Lancaster Capital Improvement Allocations

Improvement Category	Fiscal 85-86 (by $)	Fiscal 86-87 (by $)	Fiscal 87-88 (by $)	Fiscal 88-89 (by $)	Fiscal 89-90 (by $)	5 Year Total	Annual Average	Percent
Parks and Recreations	2,337,000	3,585,000	1,608,500	1,219,000	570,000	9,319,500	1,863,900	13.75%
Streets	6,800,380	12,534,142	11,524,845	8,624,600	4,223,000	43,706,967	8,741,393	64.48%
Utilities	375,000	3,619,000	4,678,000	1,655,000	0	10,327,000	2,065,400	15.24%
Community Development	599,500	295,530	776,530	825,900	200,000	2,697,460	539,492	3.98%
General City	0	1,605,000	0	123,000	0	1,728,000	345,600	2.55%
Total Allocated	10,111,880	21,638,672	18,587,875	12,447,500	4,993,000	67,778,927	13,555,785	100.0%
Percent of 5 Year Total	14.92%	31.93%	27.42%	18.36%	7.37%	100.0%		

Source: Lancaster City Budget documents; AGAJANIAN & Associates.

D. ECONOMIC DEVELOPMENT ISSUES AND OPTIONS

1. EXISTING SETTING

a. Major Economic Development Issues

There appear to be two distinct economic issues which relate to the great number of general plan issues raised by the community. The first major issue relates to the provision of jobs in the Antelope Valley. The second major issue relates to the rate and location of residential development. These two issues are not exclusive of each other, but are related. They represent two distinct focal points around which other general plan issues can be discussed and related.

The issue of jobs relates to the need to provide jobs locally for those who do not wish to commute, and provide the kind of jobs which can help diversify the local economy to attain greater economic self sufficiency. These can be achieved in any number of ways.

To attract jobs to the community, we need only provide adequate development sites for residential, commercial and industrial development. Residential growth, at a minimum, will generate retail store development and jobs. Significant industrial, office, and other commercial development and jobs will, however, require active promotion and assistance.

Economic self sufficiency may be attained by attracting greater amounts of basic industries, mostly manufacturing firms. The production jobs created by these basic industries will help broaden and enlarge essential basic industries in the local economy and diminish the impacts of severe economic contractions in the regional, the national, and the world economies.

The rate of residential development will directly affect the ability of the community to pay for needed municipal services. The cost of services for new residential development is not always met by the amount of revenues generated by the new residential development. Without active effort to increase general fund revenue sources, the City may have to reduce the level of municipal services.

The issue of aggressiveness relates to the degree of commitment the City wishes to exercise in behalf of its desired economic and fiscal goals. This commitment translates into the active promotion, assistance, and incentives to attract desired land uses and specific projects. Under highly competitive conditions, it may be necessary to aggregate small lots, assist in lowering land costs, provide timely infrastructure, provide labor force training, and similar activities to attract a project to the City. Most of these efforts will be directed toward attracting non-residential uses.

How the City can approach these two major issues and test their consequences, through the general plan alternatives, are discussed following a review of the development opportunities and constraints, which face Lancaster over both the short term the long term future.

b. Development Opportunities

Development opportunities for Lancaster are both diverse and numerous. It is apparent that residential growth in the City and the subregion has been at a very high rate, due mainly to the relatively low cost of available residential land and housing prices. Low land prices and new home prices will continue to provide a

strong source of residential demand over both the short and long term future. This demand is highly dependent on both housing price differentials and mortgage interest rates. Residential demand will soften if the differences in new home costs between Lancaster housing and housing available in the Santa Clarita Valley and San Fernando Valley diminish. Residential demand will also soften with increases in mortgage interest rates. Residential development will also occur outside of the City, but within the subregion. Thus, residential demand is a development opportunity of great significance to the City over both the short and long term future.

Retail development also presents opportunities to the community. Retail development can provide for an important increase in general fund revenues. It also provides new goods and services to local residents and reduces the amount of retail sales leakage outside of the local economy. However, retail development demand is limited to the growth of household incomes, which is related to the amount of residential growth. More homes will create more demand for retail development.

Office development presents potential development opportunities. Aside from the demand for smaller office buildings needed to house professional and personal service firms which grow with the population, there is potential demand for large back office types of development. The low cost of land and the available labor force make the City a suitable location for these types of offices. These types of offices offer new jobs to the community, though they provide little in the way new revenues to the City. Nevertheless, offices are a good source of jobs and can help diversify the local economy.

Industrial development provides good opportunities for development in both the short and long term future. Low land costs and an available supply of skilled production labor are very attractive incentives for industrial development. Aside from the small amount of industrial development generated by local population growth, industrial demand will be largely generated by new firms seeking to relocate from the San Fernando Valley and the Los Angeles basin. Manufacturing firms moving into Southern California may also provide potential future demand for industrial development. Industrial development can provide new high wage jobs to the community if they are manufacturing firms. Warehouse and distribution centers offer little employment opportunities for their large size facilities. Industrial development can also contribute to City general fund revenues through point of sale retail sales taxes.

There are other development opportunities as well, mostly in the form of commercial uses associated with tourism and entertainment. Due to the availability of low cost land and proximity to the Los Angeles basin, there are opportunities to develop theme parks, sport stadiums/facilities, and vacationing facilities. All of these uses would generate demand for additional hotel rooms. Combined, they can produce local jobs, as well as new sales and transient occupancy taxes for the City. Commercial retirement communities may also provide suitable demand to present new development opportunities.

New development opportunities can also be created with aggressive City participation in the development process. Active use of the Lancaster Redevelopment Agency (LRA) is a major opportunity to both promote development and generate new revenues. The LRA can be used to promote retail, commercial and industrial development at selected sites within its redevelopment project areas. Recent development of the Amargosa project area with the Auto Mall, the Power Center (Costco/Home Club), the preparation of a regional mall site, and the addition of 160 acres of prepared industrial sites suggest how successful the City can be in attracting new jobs and revenues to the City.

Other development opportunities may also be created with reduced development fees, establishment of tax incentives, such as enterprise zones, large scale aggregation of small sites for land banking, annexation to control development over a larger area, active pursuit of a university, specialized labor force training, and other forms of promotions, assistance and incentives. Thus, to a large degree, non-residential development opportunities can be created with local commitment to attract desired types of development.

Most importantly, Lancaster has the opportunity to consider and weigh the implications of these available development choices to determine which combination of development offers the best overall opportunities to provide new jobs and revenues to the City.

c. Development Constraints

There are few major development constraints in Lancaster. Among the most significant constraints are development competition from other peripheral communities surrounding the Los Angeles basin, the rise in land costs, the provision of needed infrastructure, and the long term fiscal resources to balance the municipal budget. Each of these constraints may be neutralized by local efforts to overcome the associated problems.

Residential and industrial competition from other peripheral communities like Victorville and Moreno Valley will present some constraints to residential development if these communities offer lower development costs (development fees) or greater assistance (timely processing and infrastructure). These other peripheral communities present competition for out of state firms moving to Southern California, but not necessarily for those relocating out of the San Fernando Valley or the Los Angeles basin. More importantly will be the competition from Palmdale and the surrounding communities within the Antelope Valley. Local efforts can be made to cooperate or aggressively compete with other communities for all forms of potential development.

Active attraction of non-residential development will necessitate some form of assistance from the community. All types of development benefit from timely processing and low development fees. However, reduced development fees mean less revenues to the City and higher infrastructure costs. Assistance to prepare commercial and industrial sites can also overcome the constraints posed by the lack of available sites.

There is a constraint to the amount of assistance that may be provided without running fiscally into the red. The City must bear the incremental cost of infrastructure development to promote growth of highly competitive uses, such as retail and industrial development. However, the City may target the amount of development fees to promote selective uses. The City may also rely upon the use of the Redevelopment Agency to provide needed infrastructure to selected redevelopment project areas.

The City will not be able to bear additional operating costs without new sources of revenues. Promoting high revenue uses such as retail, hotel and industrial development to balance low revenue residential uses can effectively overcome the constraints posed by excessive development of low revenue uses.

2. ANALYSIS

a. Available Development Options

In light of these development economic issues, opportunities, and constraints, there are three options which may be considered.

Of central concern is the impact of the amount and rate of residential growth. In large measure this concern will have an effect upon the jobs/housing balance and ability for the City to provide the needed infrastructure and local services.

The amount and kind of jobs are also of concern. Choices are available to emphasize attraction of basic industries, service industries or both. These approaches are outlined on Figure VII-D-1 as the employment and income models, respectively. The development approaches for these two models of development are outlined on Figure VII-D-2. The employment approach would seek to reach self sufficiency and reduce commuters by attracting basic industries to broaden the kind and increase the number of manufacturing jobs.

The income approach would seek to reach economic self sufficiency by increasing new municipal retail sales tax revenues generated from residential development. This strategy anticipates exporting labor to the Los Angeles basin by reducing the cost of commuting or substituting electronic transport (via computer or facsimile) for physical commuting. This income approach favors expansion of service industry jobs as a means to economic self sufficiency.

The degree of commitment the City wishes to exercise in attracting desired uses is also of concern to assess the likelihood that such actions may attract specific types of development. An aggressive approach will ensure attraction of highly competitive uses and involve financial incentive. A less aggressive approach would not cost as much, but would have less chance of attracting highly competitive development.

Thus, there appears to be several key specifications that should be addressed. These include:

- How much residential growth should be permitted in the short and long term future, and at what rate (or under what conditions) should this development proceed?
- Should non-residential development emphasize the attraction of basic (manufacturing) industries, service (retail, office) industries, or some combination of the two?
- How aggressive should the City be to attract specific job and revenue generating land uses?

EMPLOYMENT MODEL

BASIC EMPLOYMENT GROWTH

POPULATION GROWTH

HOUSEHOLD INCOME GROWTH

SERVICE EMPLOYMENT GROWTH

INCOME MODEL

POPULATION GROWTH

HOUSEHOLD INCOME GROWTH

SERVICE EMPLOYMENT GROWTH

BASIC EMPLOYMENT GROWTH

SOURCE: AGAJANIAN & ASSOCIATES, 1991.

PLANNING NETWORK

ECONOMIC DEVELOPMENT MODELS

CITY OF LANCASTER
GENERAL PLAN

EMPLOYMENT MODEL	INCOME MODEL
ATTRACT BASIC INDUSTRIES	INCREASE HOUSEHOLD INCOME
RETAIN BASIC INDUSTRIES	REDUCE COST OF FRICTION
EXPAND LABOR FORCE	REDUCE SERVICE LEAKAGE
DIVERSIFY THE ECONOMY (SERVICE)	DIVERSIFY THE ECOMOMY (BASIC)

SOURCE: AGAJANIAN & ASSOCIATES, 1991.

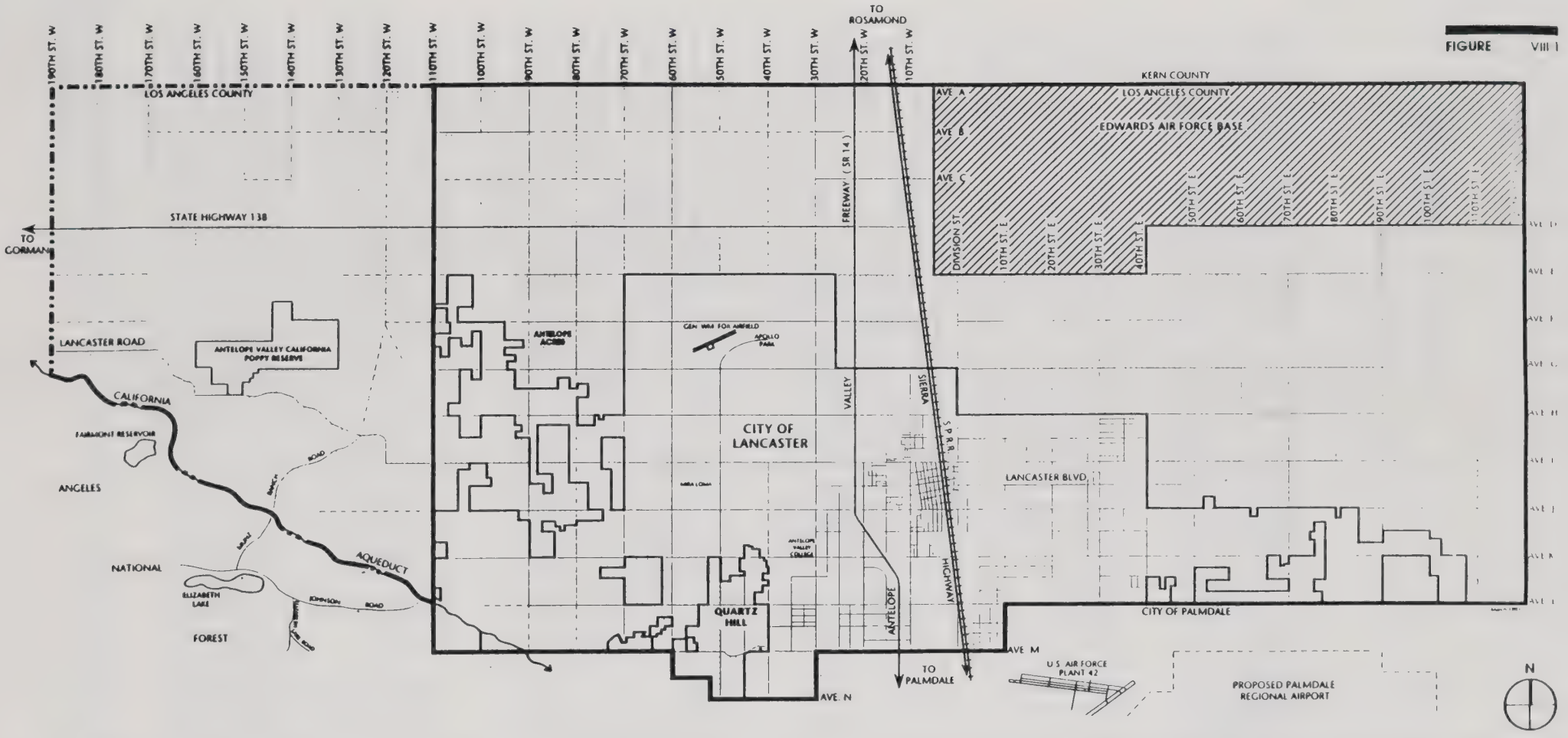
VIII. STATE OF THE CITY REPORT PHYSICAL DEVELOPMENT

VIII. PHYSICAL DEVELOPMENT

INTRODUCTION

The Physical Development Chapter addresses the City of Lancaster's physical environment in terms of its logical, functional, and aesthetic pattern. The chapter meets the state land use element requirements, as well discussing other important issues, such as the manner in which other General Plan issues affect the arrangement and design of development within the City of Lancaster General Plan study area (see Figure VIII-1). Central topics in this chapter include understanding current land uses, the design and form of present developments, land use trends for the future, and agency coordination to ensure compatible land uses.

FIGURE VIII-1



AREA CONTEXT

PLANNING NETWORK

- CITY BOUNDARY
- INCORPORATED AREA
  As of October, 1990
- SPHERE OF INFLUENCE BOUNDARY
- EXPANDED STUDY AREA
- UNINCORPORATED
- EDWARDS AIR FORCE BASE

SOURCE: City of Lancaster Planning Department

CITY OF LANCASTER
GENERAL PLAN

A. GROWTH PATTERNS

1. EXISTING SETTING

a. Existing Growth Patterns

The impetus for the development of Lancaster came in 1876, when the Southern Pacific Railroad established a stop near what would become Lancaster Boulevard for the loading of locally grown agricultural produce. Small manufacturing, warehousing, and industrial uses arose adjacent to the railroad to take advantage of its access. These activities in turn encouraged the development of commercial and residential uses. By the early 1880s, the rudiments of a town had formed that would eventually become the central core of Lancaster.

Until the 1950s, the town of Lancaster was basically contained within an area bounded by Avenue I, 10th Street West, Avenue J, and Division Street (See Figure VIII-A-1). Prior to 1950, Lancaster's economy was largely based on agriculture. The introduction of aerospace to the Valley in the early 1950s shifted the focus away from agriculture as the main economic base. As the population increased to fill the jobs created by aerospace, an influx of new residences and commercial uses began to expand the community outward from the urban core.

Through the 1960s and 70s, development continued to expand outward from the original center, but in a more dispersed pattern. The construction of the Antelope Valley Freeway during this time shifted the focus away from Sierra Highway as the main thoroughfare to the Los Angeles area. As a result, residential and commercial development begin to appear along both sides of the freeway, with some residential development locating as far out as 40th Street West. By the end of the 1970s, urban growth had extended into the southwest near the Quartz Hill community and to the east of 15th Street East.

During the 1980s, the cities of Palmdale and Lancaster underwent a period of tremendous population growth and urban expansion. There were basically two reasons for this growth: First, a resurgence in the aerospace industry, as a result of increased defense spending by the Reagan Administration, stimulated all sectors of the valley economy and was a replay of more historic growth trends. Second, the expansion of the single family home market, in response to the affordable housing crisis of the 1970s created new affordable housing opportunities for a vast number of first-time home buyers who were priced out of the Los Angeles metropolitan market. Affordable housing induced thousands of young first-time home buyers to move to the Antelope Valley. The affordable housing migration began in the early 1980s and continues to influence the City's growth during the 1990s.

Figure VIII-A-1 shows that after 1980, residential patterns begin to fill in the west and southwest portions of the City. Later in the decade, residential development, supported by new commercial development, spread eastward of 15th Street East, reaching as far as 40th Street East by the end of the decade. Residential development also expanded north of Avenue I and west of Sierra Highway into areas predominantly vacant prior to 1980.

Following closely behind the boom in residential growth was a rise in commercial development to serve the new residents. The 1980s witnessed the construction of several large commercial centers in both the cities of Palmdale and Lancaster, including the beginning of construction of the first mall and large scale auto centers in the Antelope Valley. Although commercial development spread to many new locations in the City, the primary location was along both sides of the freeway between Lancaster Boulevard and Avenue L.

While residential and commercial construction accelerated, new industrial development remained slow. Aside from the growth in commercial and retail service employment sectors, the aerospace industry continued to be the main employment base of the Antelope Valley.

In 1987, the City began an extensive annexation process which, over a three year period, increased the City's incorporated area by more than 36 square miles (See Figure VIII-A-2). Most of the annexations occurred on the east and west sides of the City, in some places extending as far out as 110th Street West and 107th Street East. Prior to the annexations, the County of Los Angeles approved several residential subdivisions in and around the unincorporated Community of Quartz Hill. By the time of the City's annexation of land surrounding Quartz Hill, many of the County approved subdivisions were completed or under construction. Further City approval of subdivisions in this area established a new extension of the residential growth pattern, which now extends west of 70th Street West. Additional subdivision approvals indicate that this area is very likely to continue to see urban expansion into the future.

b. Future Annexations

As of October 1991, there are eight requests to annex territory to the City of Lancaster. Four of these annexations are located west of 30th Street West and average approximately 153 acres. Three of the eight are designated under the draft land use plan as Urban Residential, with the density ranging from 2.1 to 6.5 dwelling units per acre. The fourth annexation has a proposed land use designated as Multiple Residential, with the density ranging from 6.6 to 15.0 dwelling units per acre. Located east of Fox Field is the largest request for annexation with 253 acres of territory on both sides of the Antelope Valley Freeway. This annexation has three proposed land uses; Medium Industrial, Non-Urban Residential, and Urban Residential. Approximately half a mile southeast lies a 185 acre site designated by the draft general plan as Light Industrial. To the east of 50th Street East are the remaining two annexations. The smaller of the two annexations is designated Non-Urban Residential with a density of one dwelling unit per acre. The larger annexation is approximately 1,145 acres and is designated by the proposed land use plan as an Urban Residential Specific Plan, which would allow development similar to the Serrano Ranch project. The proposed eight annexations represent a 2,375 acre increase to the size of the City.

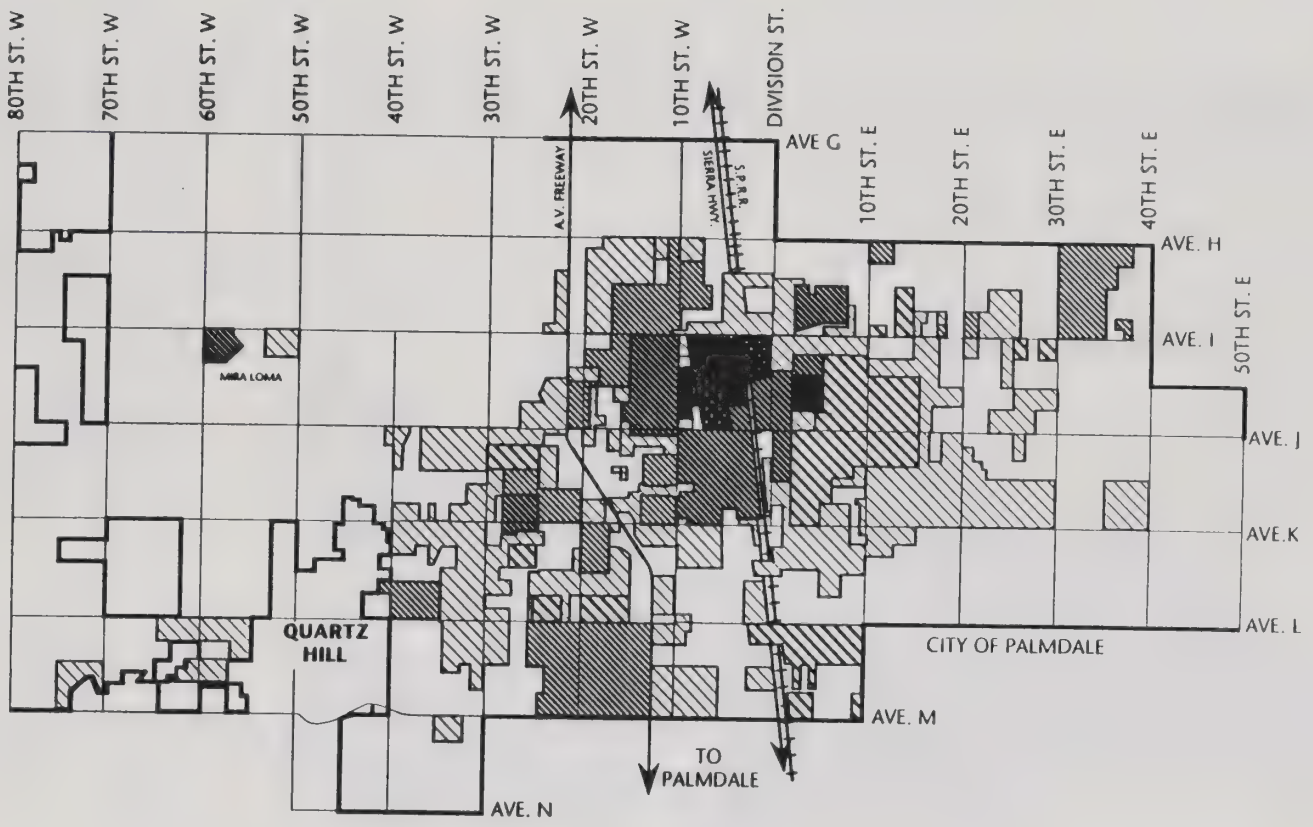
Approval of future annexation will most likely take place to create more logical, easily serviced boundaries.

c. Approved Projects

Currently, there are two approved major developments planned in the City: The Serrano Ranch Community Plan and the Del Sur Planned Community. Upon buildout, each project will not only contribute to the overall quality of life, but will also have a significant influence on potential land uses for adjacent areas.

Serrano Ranch Serrano Ranch is an approved master-planned housing development located on a 2.6 square mile site, eight miles southeast of downtown Lancaster, bounded by 40th Street East, Avenue J, 70th Street East, and Avenue L (see Figure VIII-A-3). The site currently consists of plowed fields in the western portion, uncultivated desert land in the eastern portion, and sand dunes along the northern and southern edges.

FIGURE VIII A 1



PLANNING NETWORK

BEFORE 1940

1940-1950

1950-1960

1960-1970

1970-1980

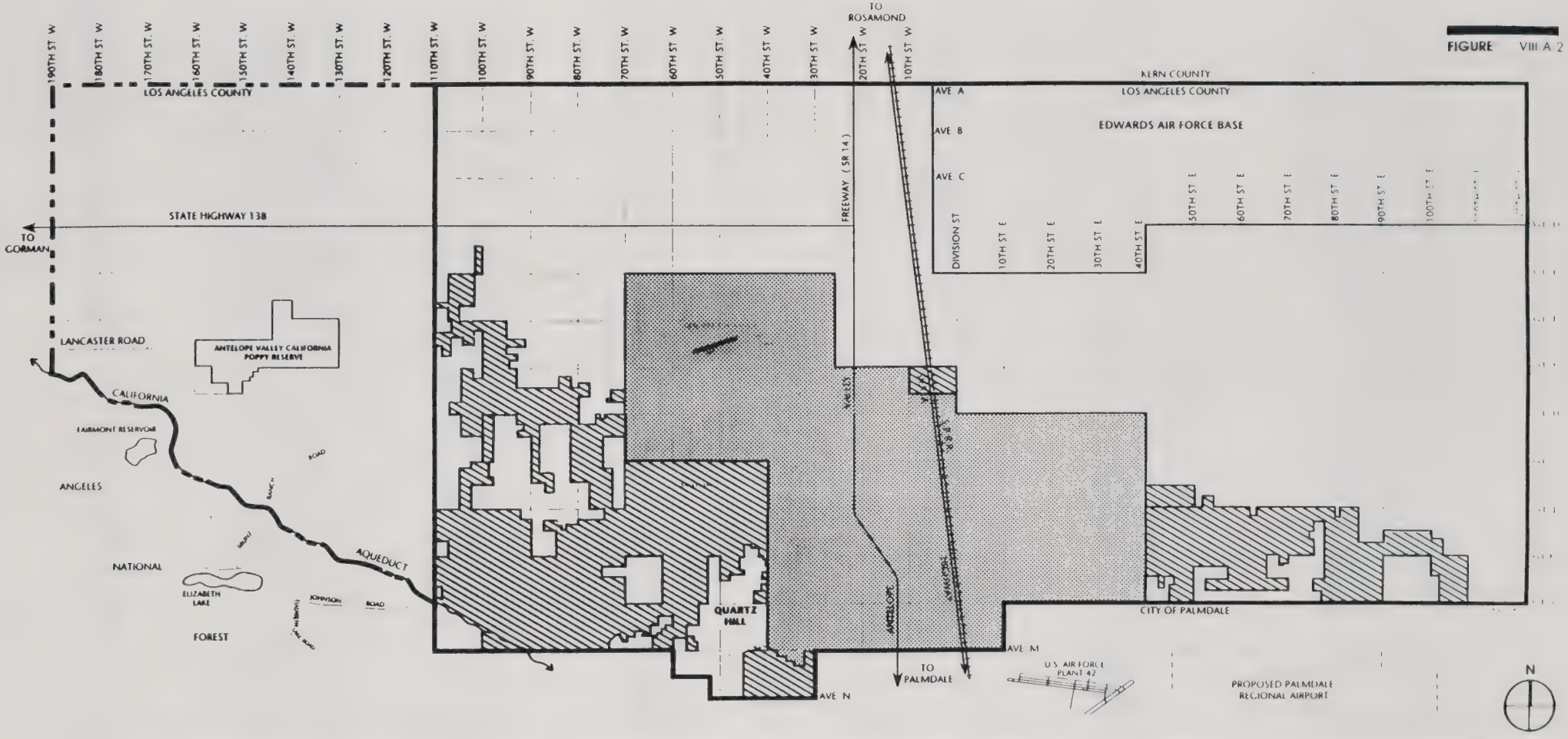
1980-1990

SOURCE: City of Lancaster Department of Community Development, 1991.

HISTORIC GROWTH OF THE CITY

CITY OF LANCASTER
GENERAL PLAN

FIGURE VIII A 2



PLANNING NETWORK

CITY BOUNDARY PRIOR TO 1989

ANNEXATION AREAS

SOURCE: City of Lancaster Department of Community Development, 1991.

ANNEXATIONS

CITY OF LANCASTER
GENERAL PLAN

The project will be developed over 15 years in three phases, creating a total of 4,732 single-family and multifamily dwelling units, and just over 86 acres of commercial use. Approximately 334 acres will be dedicated to school/park land and open space uses, which includes an 18-hole golf course. Other public uses in the project include five retention basins, four drainage washes, and the Little Rock Wash (see Table VIII-A-1). A system of trails will be developed which will tie into the Master Plan of Trails.

Table VIII-A-1
Serrano Ranch Project

Land Use	Acres	Units	Population
Single Family Residential Includes Semi-Rural (1-2 du/a) and Single Residential (7,000 square foot lots)	747.8	2,490	8,630
Moderate Density Residential (Two densities ranging from 6 du/a to 11 du/a)	268.6	2,242	5,000
School/Park, Park, Golf Course	333.9		
Commercial	86.4		
Other (includes retention basin, drainage wash, road, fire station)	215.3		
TOTAL	1,652	4,732	13,630

Source: Serrano Ranch Specific Plan GPA 88-34 and EIR, December 1989.

Del Sur Ranch This master planned project is located in the presently remote agricultural northwest section of Lancaster, bounded roughly by 90th Street West, Avenue H-8, 105th Street West, and Avenue G (see Figure VIII-A-3). The site is farmland not currently in cultivation by the rural community of Antelope Acres.

Although designed primarily as a residential community, the 880 acre Del Sur development contains a combination of land uses, including not only residences, but also commercial, school, parks, and open space uses. For example, along with approximately 2,500 single-family homes, there will be two school sites, a community park and a neighborhood park, a 9.4-acre commercial center, and a fire station. The majority of residential lots will be 7,000 square feet, although lots will vary between 7,000 to 20,000 square feet.

Table VIII-A-2
Del Sur Ranch Project

	Acres	Units	Population
Residential (average 3.3 du/ac)	742.0	2,500	8,000
Commercial	9.4		
Park	18.0		
School/Other	110.6		
TOTAL	880.0	2,500	8,000

Source: Final Environmental Impact Report, State Clearinghouse No. 88062221, August 1989. GPA 88-01, Zone Change 88-02, TT46250.

Although they represent two of the City's largest projects, Serrano Ranch and Del Sur constitute only a portion of the overall approvals for various projects within the City of Lancaster. Table VIII-A-3 summarizes the number of dwelling units and square footage of commercial and industrial projects that, as of June 1991, had received City approval and were either under construction or in various stages of the plan check process.

Table VIII-A-3
Projects Approved But Not Completed
Within the City of Lancaster

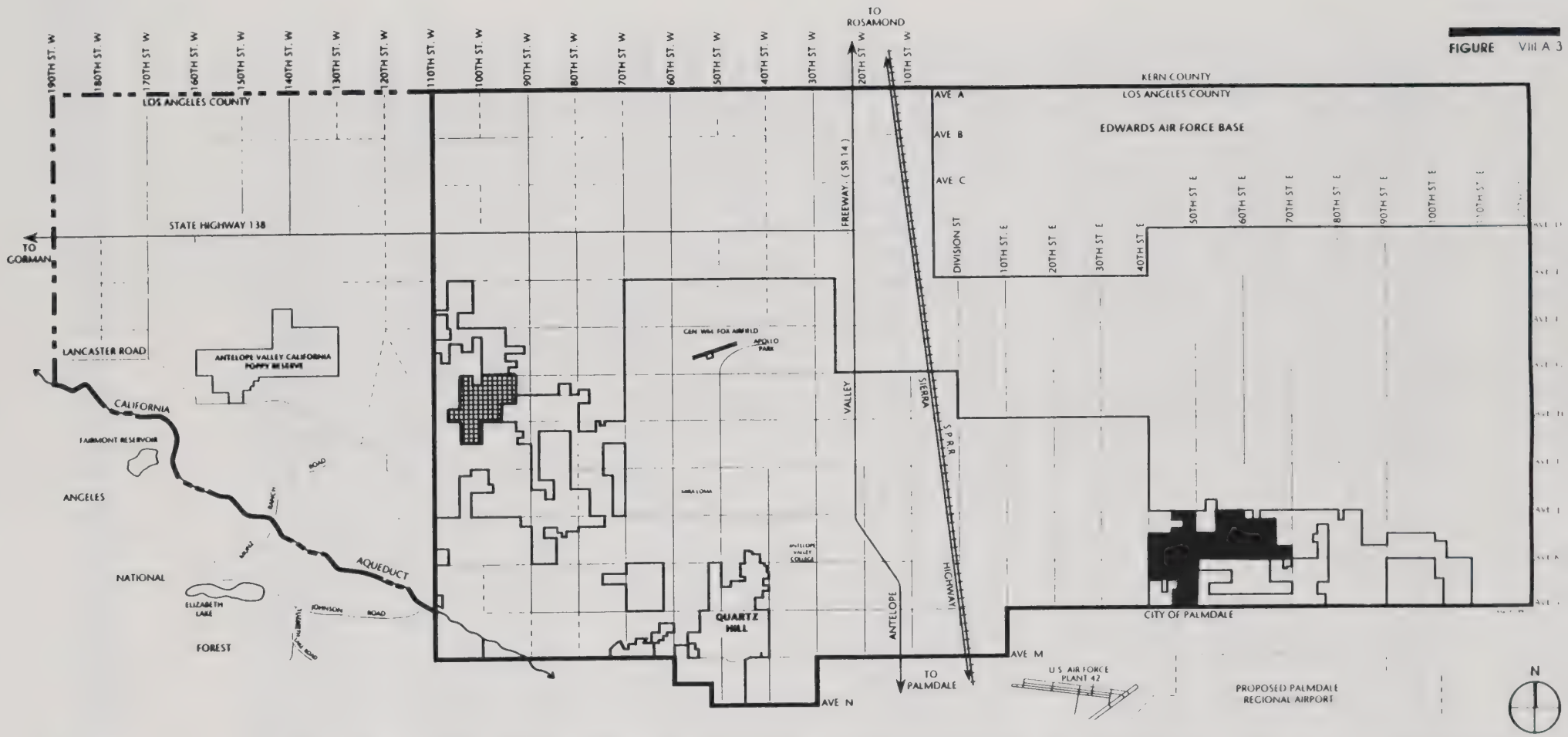
	Single Family Units[1]	Multi-Family Units[1]	Commercial Square Feet[1]	Industrial Square Feet	Public Use Square Feet
East of Division Street	6,095	31	343,700	223,200	43,600
West of Division Street	12,624	404	769,330	287,150	106,500
Total	18,719	435	1,113,030	510,350	150,100

Source: City of Lancaster, Department of Community Development, June 1991.
1 Does not include the Serrano Ranch Specific Plan.

d. Growth Influences and Constraints

There are a variety of influences and constraints that may stimulate or inhibit urban growth. To begin with, the need for affordable housing in the Southern California area has been an important impetus for growth in the Lancaster area. As the price of single family homes began to rise across the state in the early 1980s, many working people were priced out of the housing market. The affordability of housing in Lancaster, coupled with the growth in the local aerospace industry, stimulated one of the largest growth periods in Lancaster's history.

FIGURE VIII A 3



APPROVED PROJECT LOCATIONS

PLANNING NETWORK

- THE SERRANO RANCH COMMUNITY PLAN
- THE DEL SUR PLANNED COMMUNITY

SOURCE: Planning Network, 1991.

CITY OF LANCASTER
GENERAL PLAN

Along with housing, transportation has been a fundamental factor associated with the City's growth. The Antelope Valley Freeway provided relatively easy access to employment centers in the San Fernando Valley and Los Angeles area, allowing people to continue to move to Lancaster. However, as the population increases, traffic congestion is making this more difficult and may become a significant constraint to further growth in the future.

In addition to affordable housing and transportation, military employment was important to growth in the City. Although the number of these jobs will not likely decline a great deal in the future, they will probably represent a smaller percentage of the overall job market as service industries continue to grow.

To fully understand patterns of urban growth, it is important to analyze constraints to growth. One major constraint involves the provision of municipal services. In Lancaster, growth patterns have been based on secured agreements with service providers. However, even with these agreements, areas between approved developments and the urban core are left without service. This has led to `nodes' of development to the west and east of the urban core.

The availability of water is another growth constraint. Water supply service depends on the availability of potable water within reasonable location to the demand. According to local water agencies, water use in Lancaster is over twice the average consumption typically found in more temperate areas of Southern California. To supply this, there is a heavy reliance on groundwater, which has led to overdrafting of the local groundwater basin. According to the wholesale water agency that serves the Lancaster area, the availability of water will depend on the size of safe yields of groundwater and achieving the full entitlement from the State Water Project.

The Lancaster physical environment also influences areas of urban growth. Future land uses should, to the greatest extent feasible, be consistent with the specific topographic features of the area. Although the valley floor and much of the study area is relatively flat, there are several areas in which the sloping topography acts as a limitation to various types of development. The slopes and hills present moderate limitations, such as excavation and grading. Steeper slopes present severe limitations, requiring extensive excavation and possibly some blasting during construction. In addition, these areas are limited due to access and utilities needed to support urbanization.

Soils found in the study area may present a few significant limitations to urban development. The areas where expansive soils are found may cause some problems in terms of development, such as damage to building foundations, highways, and other surface structures. In addition, there are areas in the City that are experiencing fissuring due to excessive groundwater withdrawal. As the groundwater table continues to decline, the soil caves, in resulting in sink holes and fissures. All of these effects, however, may be mitigable with existing building codes and specific City requirements, determined by thorough study of the problem.

However, some areas within the study area may be prone to liquefaction, differential settlement, and landslides. Engineering studies are required in these areas to analyze the feasibility or most appropriate design and construction techniques to mitigate potential problems. In general, lower density developments are typically encouraged in areas subject to these conditions.

The City of Lancaster's geology and close proximity to the San Andreas and other active faults pose some concern to development. The San Andreas Fault Zone is delineated as an Alquist-Priolo Special Study Zone near the southwestern portion of the study area. Therefore, it should not pose a significant restriction to development.

Much of the City of Lancaster and the study area is susceptible to flooding, caused by surrounding mountain runoff and due to its relatively flat topography. Areas designated by the Federal Emergency Management Agency (FEMA) as 100-year flood zones require structures to be built at least one foot above the level of a 100-year flood, without raising flood hazards on adjacent lands and site specific mitigation for other areas, per the City's building code. These areas are generally along Amargosa Creek and along State Route 14, the area north of Avenue D and east of 70th Street West, along Little Rock Wash, and along smaller washes in the western portion of the study area (see The Plan For Public Health and Safety, Figure III-B-1).

2. ANALYSIS

a. Projected Growth Areas

Three significant factors have provided the framework for future development trends in the City of Lancaster. First was the intense period of urban expansion which occurred primarily during the second half of the 1980s and, generally, extended urbanization out to the original City boundaries. This period of expansion reduced existing land use inventories within the established areas of the City and resulted in increased pressure from the building industry to extend urbanization beyond the older City boundaries.

Second was the aggressive annexation program undertaken by the City in the late 1980s, which added some 36 square miles to the incorporated area (see Figure VIII-A-2). This helped to encourage urban expansion into areas that, until this time, had remained largely vacant and rural. One of the first areas to begin a transformation to urban densities was the area around the Quartz Hill community. Urbanization in this area was partly the result of City approvals following the annexations and partly the result of County approvals of subdivisions, which commenced prior to the annexations. Current development activity in this area now extends past 70th Street West.

Third was the City's approval of the Del Sur Planned Community and the Serrano Ranch Community Plan, two major planned communities located at opposite sides of the City.

These land use actions provide the structure for three future urban growth areas in the City of Lancaster (see Figure VIII-A-4): one in the Quartz Hill area, generally extending out to 100th Street West and north to Avenue J; a second consisting of the Del Sur project and the land west of the Antelope Acres community extending up at least to Avenue E; and a third, which includes Serrano Ranch and the land surrounding this planned community. In all, these projected growth areas would extend the City's urbanizing areas to approximately 17 miles in an east-west direction, and would leave large gaps of undeveloped land between them.

b. Infill Development

Within the City of Lancaster there are a variety of vacant underdeveloped, deteriorated, and/or dilapidated properties which present the potential for infill development. For cities, developing these infill sites makes sense. Their development reduces the cost of providing services by ensuring the logical expansion of community facilities. The advantage of infill development for a developer is the presence of infrastructure, one of the most expensive parts of development. However, even with the existence of infrastructure, it is often economically infeasible for developers to build on these small parcels. It often takes extensive city involvement, through redevelopment efforts or other methods, to develop infill projects.

c. Land Fragmentation

Projected urban development within the Lancaster study area is characterized by a central core, flanked by urban nodes on the east (Serrano Ranch) and the west (Del Sur). These three distinct areas are separated by large tracts of land, which have been subdivided into lots of 2.5 acres or less. Representatives of the development industry in the Antelope Valley claim that the ownership of the land in these areas is fragmented, making assemblage and development of the land closer to the City center difficult for what they believe to be a very long time. To avoid similar land fragmentation in the Fox Field area, it will be important to protect existing large industrial lots.

d. Redevelopment as a Growth Stimulator

Redevelopment, which combines a municipality's police and corporate powers, is one of the most powerful tools available to local governments. Where the private sector is unable or unwilling to assemble land and invest the necessary capital for revitalizing blighted areas, redevelopment is a means of focusing community resources to transform deteriorating or underutilized areas to more productive use.

Under California Community Redevelopment Law, redevelopment agencies, in carrying out a redevelopment program, are empowered to buy and sell real property, rehabilitate existing structures, move structures, provide public improvements in support of development activities in a project area, or assist the private sector in financing the preceding activities.

There are six redevelopment project areas in Lancaster: the Residential Redevelopment Project, with a residential component; Central Business District Redevelopment Project, which is the downtown Lancaster historic core; Fox Field Redevelopment Project, generally the northwest quadrant of the City; Amargosa Redevelopment Project, encompassing areas affected by the Amargosa Creek; Redevelopment Project Number 5, and Redevelopment Project Number 6, which are both scattered throughout the City (see Figure VIII-A-5). Approximately half the City's acreage, a total of 25,728 acres of land, are located in redevelopment project areas (see Table VIII-A-4).

The law provides that a redevelopment agency may obtain financing from any legal source. Most redevelopment agencies have relied on tax increment financing as a primary source of money. In this method, the assessed value of property in the project area is frozen at the time a project is identified, and the project area is formed. The increased margin, or increment, of which the Lancaster Redevelopment Agency receives a percentage of tax revenues resulting from subsequent improvements, pay the project's costs, instead of being turned over to the usual taxing agencies. This lasts for a specified amount of time. In Lancaster, the time ranges from 30 to 45 years (see Table VIII-B-4).

Following Proposition 13, tax increments are based primarily on actual improvements rather than inflation. Thus, unless significant investments are made, with subsequent significant increases in property development and valuation, tax increments will be limited, as will the ability of the agency to carry out further projects.

In addition to using tax increment financing, the agency may accept loans or grants from agencies of the federal or state governments, or any other public agency.

Section 33321 of the California Health and Safety Code requires every redevelopment plan adopted by a redevelopment agency to conform to the local agency's General Plan "insofar as the latter applies to the project area." The Health and Safety Code also requires the local Planning Commission to report on the conformity of the proposed redevelopment plan with the General Plan of the local agency. However, Lancaster Redevelopment Agency plans conform to the City's General Plan and zoning.

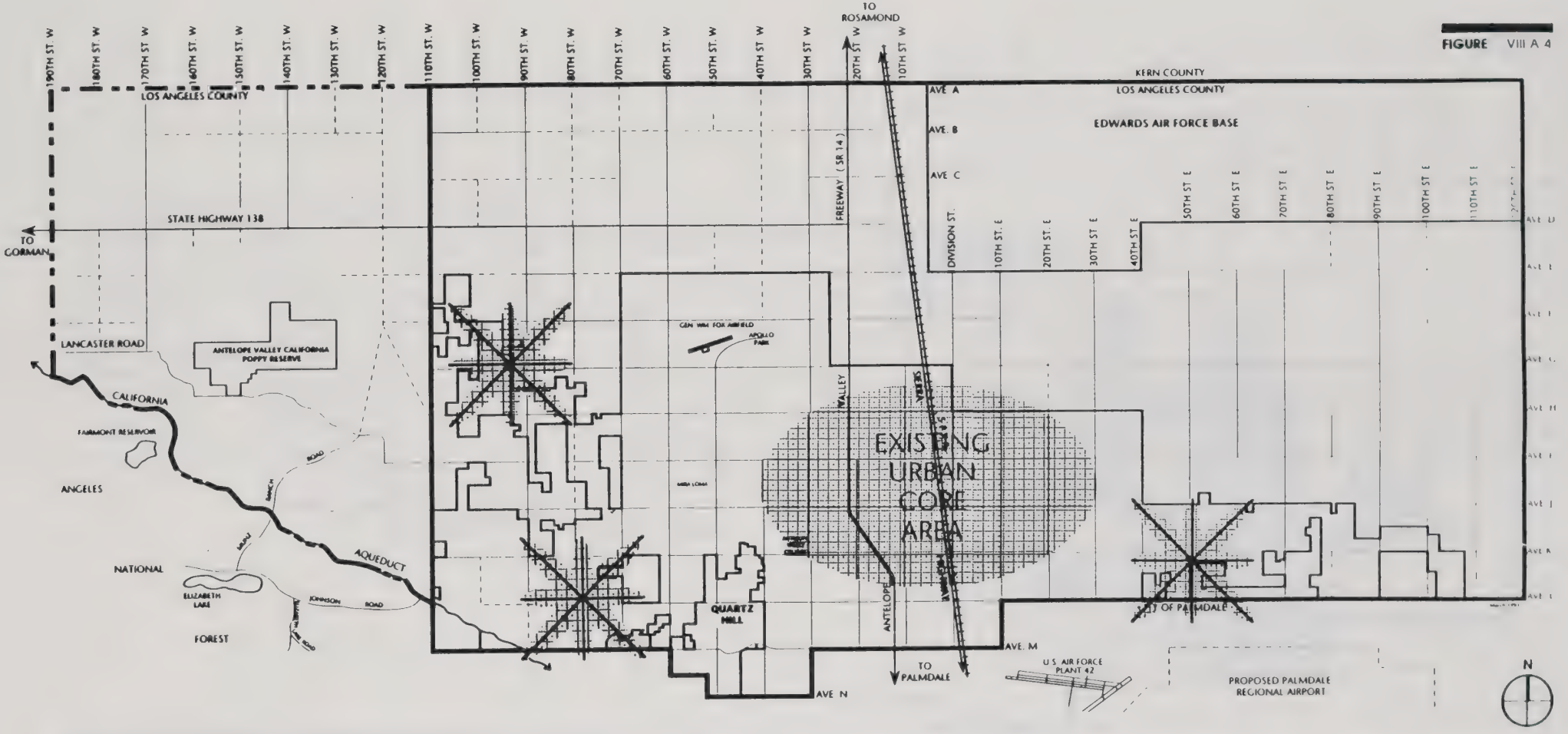
Every redevelopment plan must contain building use limitations. Since the redevelopment plan is required to conform to the General Plan, and since there is no requirement to conform with applicable zoning use classifications, a redevelopment plan's use designations can differ from zoning use classifications applicable to property in the project area. The effect of the redevelopment plan may be to restrict development that is otherwise permitted by applicable zoning.

Table VIII-A-4
Redevelopment Areas

Project Area	Acres	Year Originated	Time Period (years)
Residential	600	1979	40
Central Business District (CBD)	438	1981	45
Fox Field	3,300	1982	30
Amargosa	4,600	1983	45
Number 5	4,500	1984	45
Number 6	12,290	1989	45
Total Acres	**25,728**		

Source: Planning Network, 1991.

FIGURE VIII A 4



ANTICIPATED GROWTH AREAS

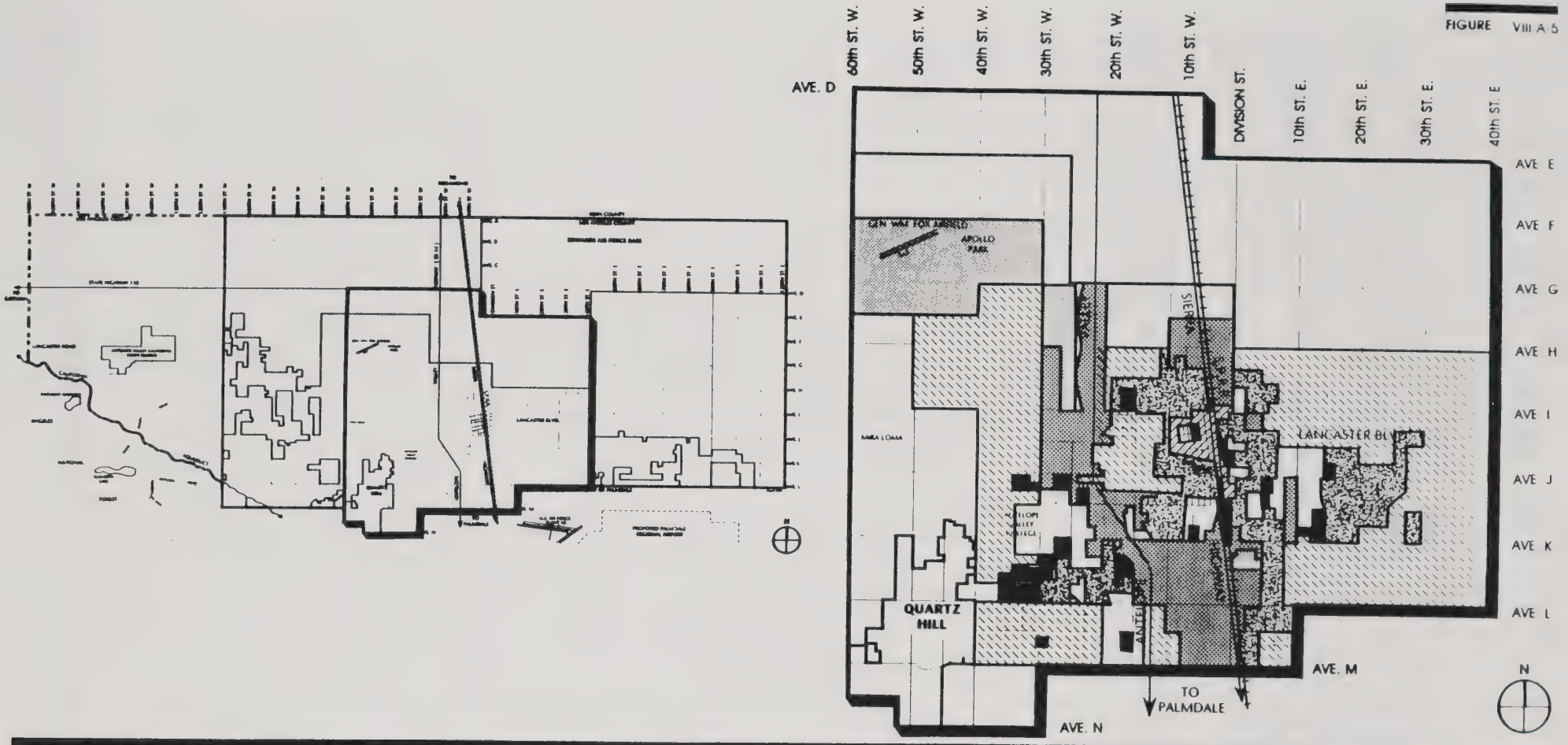
PLANNING NETWORK

Anticipated Growth Areas

SOURCE: City of Lancaster Department of Community Development, 1991.

CITY OF LANCASTER
GENERAL PLAN

FIGURE VIII A-5



REDEVELOPMENT PROJECT AREAS

PLANNING NETWORK

- CENTRAL BUSINESS DISTRICT
- RESIDENTIAL
- FOX FIELD
- AMARGOSA
- OUTSIDE REDEVELOPMENT AREA
- No. 5
- No. 6

SOURCE: Lancaster Redevelopment Agency
Redevelopment Programs 1991.

CITY OF LANCASTER
GENERAL PLAN

e. Problems with Providing Infrastructure and Services

Approval of the Del Sur Planned Community and the Serrano Ranch Community Plan will lead the City to grow outward from several specific areas (see Figure VIII-A-5). The current urban development in Lancaster is localized in four distinctly separated centers concentrating around Del Sur, Serrano Ranch, Quartz Hill and Central Lancaster. Public service agencies which provide services to City residents and businesses have expressed concern over the dispersed nature of development within Lancaster. They have indicated that a high per-unit cost for providing services and maintaining facilities has resulted from these development patterns.

Through the Urban Structures Program designed by the City, strict development controls in areas with limited local services are in place to minimize this potential problem (see Preface of the General Plan).

B. LAND USE PATTERNS

1. EXISTING SETTING

This section examines the pattern of land uses, locates areas of interface and compatibility problems, and identifies tools for regulation and control.

a. Existing Land Use Patterns

The City of Lancaster is characterized by a pattern of low density, sprawling land uses, which extend from west of 70th Street West to 40th Street East, with isolated areas of rural development at various locations (see Figure VIII-B-1). The pattern includes a central core, located approximately between the Antelope Valley Freeway and 20th Street East, which consists of a mix of land uses, including older, as well as newer, single family developments, multiple family projects, and commercial retail and office uses.

The central core represents the older portion of the City. It contains the downtown area and much of the major commercial and older residential neighborhoods. Also included here are many recent residential subdivisions and multiple family projects constructed during the 1980s.

Most recognizable in this area is downtown Lancaster, generally defined by Avenue I, Avenue J, Sierra Highway, and 10th Street West. The center of downtown is along Lancaster Boulevard, which contains general retail uses, government and private offices, as well as the local museum and performing arts center. To the north and south of the commercial district on Lancaster Boulevard, are situated some of the oldest of the City's residential neighborhoods.

The predominant land use within the core is single family residential, which consists of single family subdivisions, containing lots ranging in size from 6,000 to 10,000 square feet or greater. There are also several significant areas of multiple family residential at various locations, as well as most of the City's established mobile home parks. A large portion of the single family residential development occurred prior to 1980, particularly within the area bounded by Avenue H-8, 15th Street East, Avenue K, and 20th Street West. Consequently, most of the residential subdivision activity which occurred within this area after 1980 represented infill development.

During the 1980s, single family subdivisions, as well as multiple family projects, began to extend into areas east of 15th Street East, which before 1980 had been largely undeveloped. By the end of the decade, residential subdivision activity had extended into areas as far out as 30th Street East.

Commercial land use patterns in the central core generally consist of four types: the downtown commercial core; strip commercial along primary and secondary highways; older commercial/industrial uses along Sierra Highway; and newer commercial uses, located along the Antelope Valley Freeway.

Most of the strip commercial developed prior to City incorporation. Patterns of strip commercial within central Lancaster are primarily located along Avenue I between 15th Street West and Division Street, along 10th Street West between Avenue I and Avenue J, and along Avenue J between 10th Street West and Division Street.

A strip commercial/industrial land use pattern follows Sierra Highway, which bisects the central core. This land use pattern was established prior to the construction of the freeway, at a time when Sierra Highway represented the City's primary business corridor. Consequently, most of the commercial and industrial buildings predate City incorporation.

The newer pattern of commercial land uses is the commercial corridor located on both sides of the Antelope Valley Freeway between Lancaster Boulevard and Avenue L. This corridor contains the major commercial uses like the Power Center, Lancaster Auto Mall, and the Commerce Center.

The portion of the study area east of the central core (generally east of 40th Street East), is characterized by large open tracts of vacant land, interspersed with scattered and clustered rural and agricultural land uses. The only commercial uses are those generally found to serve a limited area with very specific services. During the late 1980s, the City began annexing land within the east Lancaster area. Most of these annexations involved land located between Avenue J and Avenue K. By 1990, the annexations had extended the City boundaries to 107th Street East. Part of the land contained within the annexations between 40th Street East and 70th Street East comprises the site of the future Serrano Ranch Master Planned Community.

The portion of the City south of the central core (generally south of Avenue K and west of the Antelope Valley Freeway), contains a mixture of land uses ranging from low density residential to industrial. Single family residential land uses are largely located south of Avenue K between 5th Street East and 15th Street East. The part of this area east of 15th Street East was designated for rural land uses and remained largely undeveloped during the 1980s. In recent years, pressure to use this land for higher density residential uses resulted in large portions being redesignated for urban residential development.

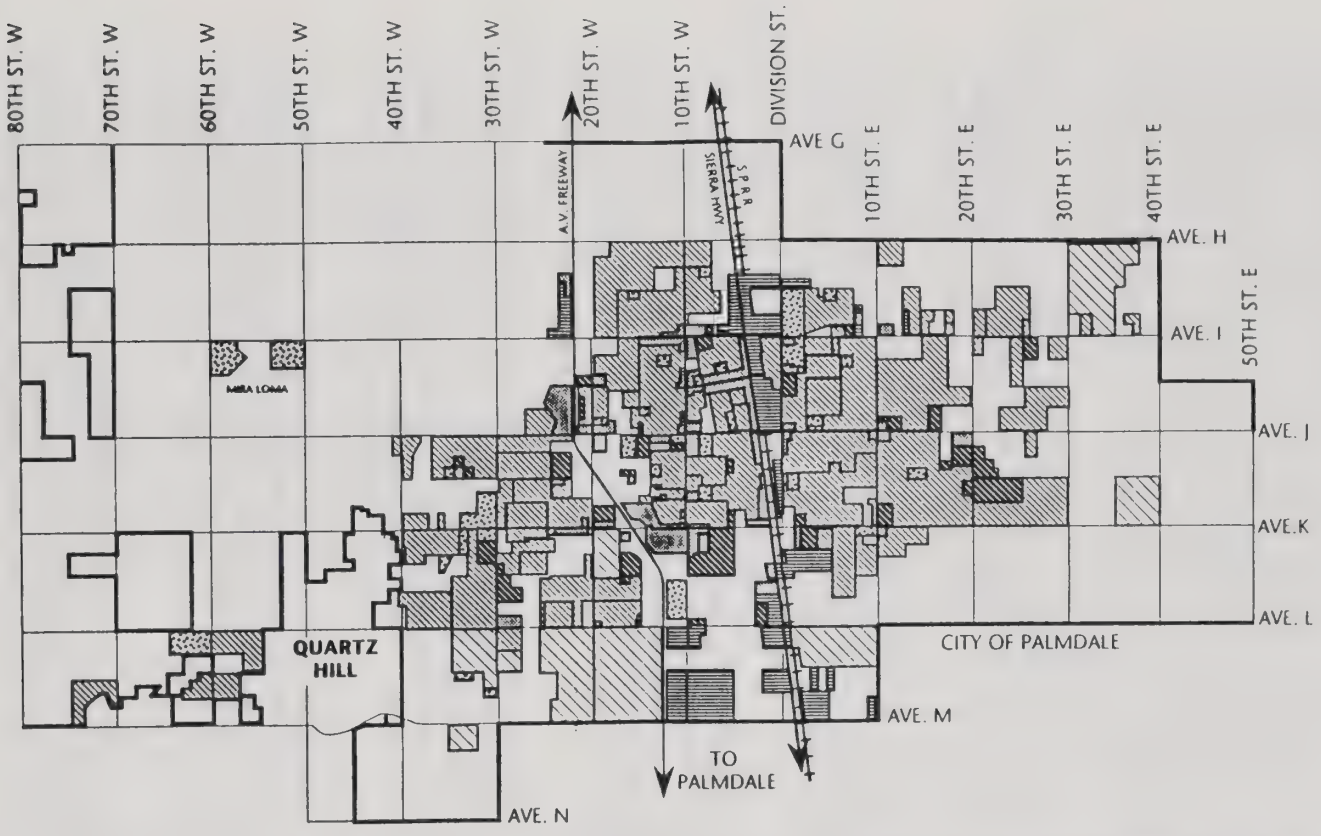
Industrial land uses comprise a large section of this southern area of the City. They are primarily located south of Avenue L, between the freeway and 15th Street East. The portion of this industrial area east of the railroad tracks and south of Avenue L consists of a mixture of small scale industrial uses, intermixed with residential uses, many of which date back several decades. The City's only industrial park is also located within south Lancaster, south of Avenue K between Division Street and 5th Street East. Recently, the land area of this industrial park was expanded to include an additional 160 acres.

The commercial land use patterns in south Lancaster are located along the freeway and include the Commerce Center and the Lancaster Auto Mall currently under construction. Older commercial strip development is located along the west side of Sierra Highway. South Lancaster also includes the largest of the City's parks.

The area located to the west of the freeway and south of Avenue I includes an established residential and commercial portion of the City, as well as the Antelope Valley College, the valley's only institution of higher learning. The most predominant land use pattern is single family residential.

The college area also contains significant multiple family housing, particularly below Avenue K. Much of the residential development during the 1980s occurred within this portion of the City. Although much of the area adjacent to Antelope Valley College is developed, there remain large tracts of vacant land.

FIGURE VIII-B-1



EXISTING LAND USE WITHIN THE CITY OF LANCASTER

PLANNING NETWORK

- RURAL RESIDENTIAL
- URBAN RESIDENTIAL
- MULTI RESIDENTIAL
- COMMERCIAL
- EMPLOYMENT
- PUBLIC

SOURCE: City of Lancaster, 1991.

CITY OF LANCASTER
GENERAL PLAN

The portion of the City, south of Avenue L and west of the freeway, represents an abrupt change in land use density from the general residential land use patterns to the north. This area consists almost entirely of rural residential uses, with lots ranging in size from 1/2 acre to 2-1/2 acres or greater. In composition, it is similar to the communities of Quartz Hill and Antelope Acres. The southern portion of southwest Lancaster below Avenue M is undeveloped, with the exception of one large-lot subdivision, located on Quartz Hill, and is partially built out with large custom homes.

West of 40th Street West and south of Avenue J is located the unincorporated community of Quartz Hill. This community has long had the atmosphere and characteristics of a small town. Over the past few years, large areas surrounding the Quartz Hill community have been developed primarily with residential subdivisions and custom homes. This recent development, as well as many proposed projects, may point to the land surrounding Quartz Hill as the next significant area of development within the Lancaster sphere of influence.

The other major feature within this area is the Mira Loma Detention Center, located on the southeast corner of Avenue I and 60th Street West. This facility is operated by Los Angeles County. The County also currently maintains the High Desert Hospital at this location. In addition, the State of California has commenced development of a prison within this one square mile site.

The portion of the study area north of Antelope Valley College and Quartz Hill is known as Fox Field. General William Fox Airfield, a County airport, is the dominant land use within this area. Located just due east of the airport is Apollo Park, which is also maintained by the County. Except for a few scattered agricultural uses, the land surrounding Fox Field is vacant.

West of Fox Field is the unincorporated community of Antelope Acres, which is composed of large-lot rural residential uses. A small commercial center is located in the vicinity of Avenue E-8 and 90th Street West. The typical residential lot within Antelope Acres is 2-1/2 acres or greater in size and contains a custom home. The raising of limited numbers of livestock and small scale agricultural production is also an aspect of the community.

During the late 1980s, the City extended its boundaries north of Avenue H and west of the Antelope Acres community. Following these annexations, the city approved three large scale urban residential subdivisions within this area, one of which will comprise the future Del Sur Planned Community. When these projects develop, Antelope Acres will be faced with the same interface problem that currently confronts the Quartz Hill community.

The portion of the study area north of Fox Field and Antelope Acres consists largely of undeveloped land and scattered rural residential and agricultural uses. Except for the State operated Antelope Valley California Poppy Reserve, the area west of 110th Street West (the Expanded Study Area) is also mostly vacant. Within this area, however, is the site of the proposed California Springs planned community.

The majority of land within the study area is either vacant or devoted to low density single family homes. As the City grows and transitions into a self-sufficient city, rather than a bedroom community for Los Angeles and the San Fernando Valley, other land uses will evolve, such as commercial, industrial, and a wider variety of residential densities.

b. Major Land Uses

Edwards Air Force Base and Air Force Plant 42 Although Edwards Air Force Base is not located in the City, the military activities that take place there affect the City. The base is located approximately 8 miles northeast of the City of Lancaster, encompassing 470 square miles, including a 2.8 mile long main runway. Two dry lake beds, Rogers and Rosamond, provide additional runways. The Precision Impact Range Area (PIRA) at the base is a principal land use and occupies the eastern third of the base. This area is divided into the West Range, the East Range, and the precision bombing range (PB-6). The West Range contains six precision bombing circles with scoring instrumentation and a conventional low-altitude, dual air-to-ground gunnery range, bombing and rocket range with defined airspace. The East Range contains precision bomb aides and an air-to-ground rocket range.

Much of the flight activity associated with the Base occurs to the north and northeast, outside of the Lancaster General Plan study area. However, the Alpha Corridor, where supersonic flight is permitted below 10,000 feet, is 23 miles long and four miles wide, located along Avenue A. This corridor represents a potential noise constraint that may be considered in evaluating land use alternatives in this area.

Air Force Plant 42 is located to the southeast of the City of Lancaster, and occupies 5,832 acres or 9.1 square miles. This facility houses several specialized military aerospace programs, primarily the research, assembly, and testing of aircraft. The Plant contains two main runways, each approximately 12,000 feet long, with numerous buildings and hangars for the testing, maintenance, and monitoring of aircraft. It is most recently known as the assembly installation for the Northrop B-2 Stealth Bomber. The Palmdale Regional Airport also uses this facility, operating a civilian airport on 62 acres of land leased from Plant 42.

Antelope Valley College Antelope Valley College is a local 2-year college, located approximately three miles southwest of downtown Lancaster. Its educational facilities are heavily used, generating high traffic volumes on access streets.

Power Center/Auto Mall The Power Center is a subregional shopping development in Lancaster, characterized by its warehouse/promotional retail, as well as restaurants and supporting retail services. The center is bounded by State Route 14, 25th Street West, Lancaster Boulevard, and Avenue J. The area has been developed as individual sites of large buildings.

The Auto Mall is proposed to be a principal center of new car dealerships in the City, serving local residents and adjacent communities. The Auto Mall, which is currently under construction, will house some of the dealerships presently sited on Sierra Highway. This district encompasses a large commercial area, extending from Avenue K-4 to Avenue K-8 on the west side of 10th Street West, with excellent freeway visibility.

Mira Loma Detention Facility Mira Loma Detention Facility occupies 54 acres north of the Quartz Hill community. It is a medium to minimum security facility, operated by the County of Los Angeles Sheriffs' Department. The Challenger Boys Camp, part of the detention facility, is located on 115 acres on the eastern portion of the site. In addition, the State began construction of prison facilities on this site in 1991. An Animal Care/Control Center and the High Desert Hospital are also located nearby.

General William Fox Airfield Located near the center of the study area, between the Antelope Valley Freeway and 70th Street West, this general aviation airport is the dominant land use within the area. Except for the airfield, Apollo Park, and a few businesses and residences, the area is largely undeveloped. One of the six redevelopment areas in the City of Lancaster includes 3,300 acres surrounding Fox Field.

c. General Plan Land Use Classifications and Map

Land use designations assign the type and intensity of development to specific areas. Residential designations for instance, measure intensity by the number of dwelling units per acre (du/ac). Other designations are defined by the specific types of uses they permit and the scale of the project allowed. Land use designations include standards for building intensities for each category, while floor area ratios (FAR's) are used to describe the maximum building intensity for the commercial and industrial categories of land use. A floor area ratio is the ratio of building floor area to the total land area of the lot.

There are 22 land use designations on the Lancaster General Plan Land Use Map which have been aggregated into the following seven general land use categories: Non-urban, Urban Residential, Multiple Residential, Commercial, Employment, Facilities, and Specific Plan (see Table VIII-B-1). Each of these seven categories include various designations, which further define the nature and intensity of development. These General Plan designations are then translated into zoning categories, which regulate development.

2. ANALYSIS

a. Needs for Residential Land Uses

The Southern California Association of Governments (SCAG) projects that Lancaster's population will increase to 234,228 people by the year 2010. Using a figure of 2.65 persons per household (Department of Finance, 1989), a population of this size would require a total of 88,388 dwelling units, or approximately an additional 51,800 dwelling units.

Table VIII-B-2 indicates that the General Plan land use map designated 31,233 acres for urban residential and multiple residential use, which would accommodate a maximum number of 126,383 dwelling units within these land use density ranges, easily housing the projected population for 2010.

The SCAG Regional Housing Needs Assessment (1988) estimated a need for an additional 11,734 dwelling units of all types between 1989 and 1994[1]. Approximately 5,345 (45.6 percent) are needed for high income households, and 2,244 (19.1 percent) for moderate income households. A total of 2,379 units (20.3 percent) are needed for low income households, and 1,765 units (15.0 percent) are needed for very low income households. The 31,233 acres of various residential land use densities that would be available under the proposed General Plan would allow a total of 126,383 dwelling units of varying housing types, which would be more than the amount indicated by SCAG as required to meet the Regional Housing Needs Assessment numbers. The locations of these various inventories of vacant residential land are shown in Figure VIII-B-2.

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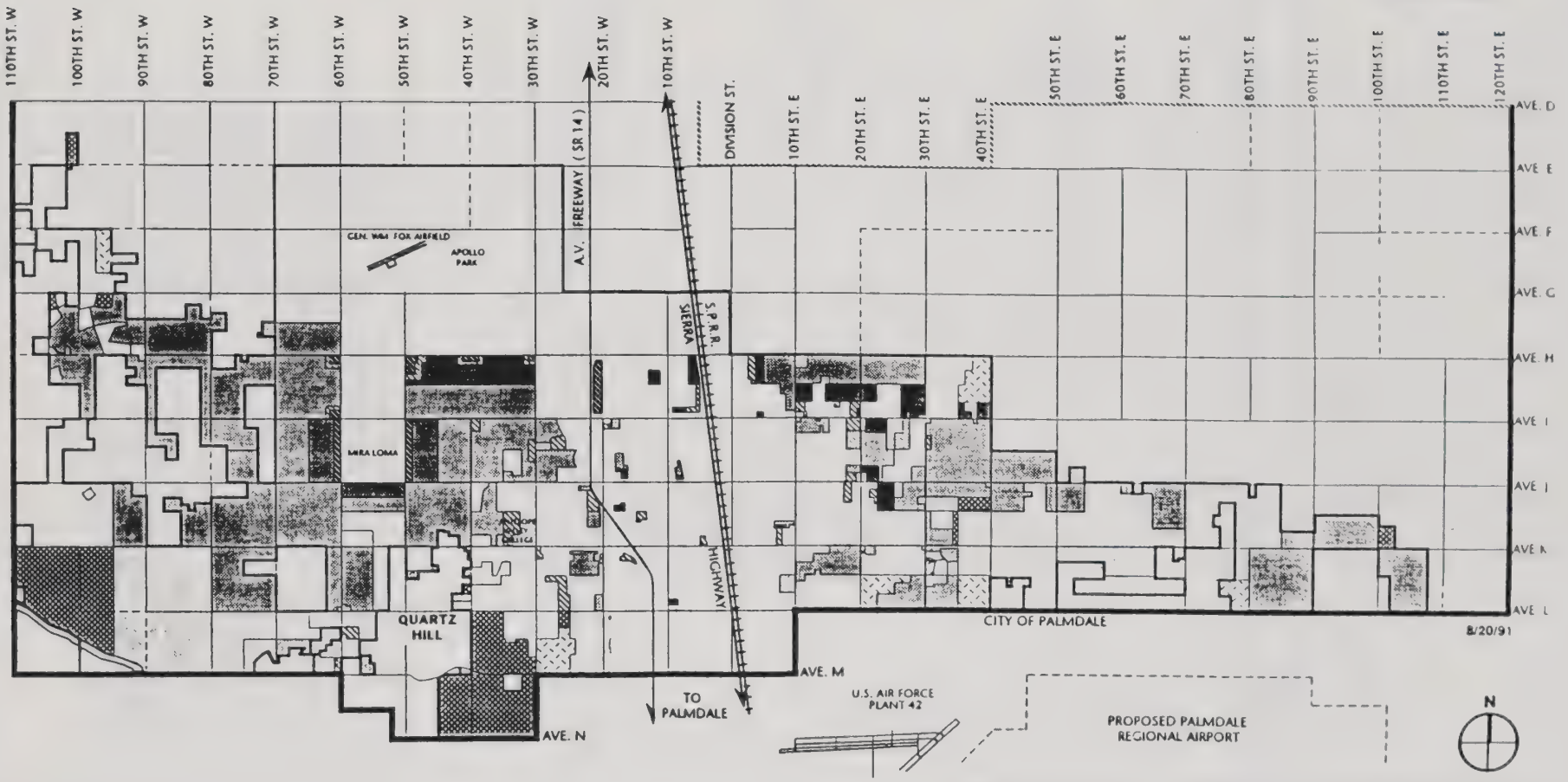
1 The recession, which begun in 1990, resulted in a substantial downturn in new home construction in Lancaster. As a result, it is unlikely that the City will be able to meet its Regional Housing Needs numbers during the planning period. For additional information, see Section I, "Quantified Objectives" of the Housing Element.

Table VIII-B-1
General Plan Land Use

Designation	Land Use	Intensity
Nonurban Residential	NU1	Nonurban Residential Very Low Density
	NU2	Nonurban Residential Rural Residential
	NU3	Nonurban Residential Low Density
	NU4	Nonurban Residential Transitional Density
Urban Residential	UR1	Urban Residential Transitional Density
	UR2	Urban Residential Low Density
	UR3	Urban Residential Moderate Density
Multi-Residential	MR1	Medium Density Residential
	MR2	High Density Residential
Commercial	GC	General Commercial
	SRC	Subregional Commercial
	RC	Regional Commercial
Employment	OP	Office Professional
	BP	Business Park
	LI	Light Industry
	MI	Medium Industry
	HI	Heavy Industry
Facilities	H	Health Care
	S	School
	P	Public
	PK	Parks
	O	Open Space
	C	Cemetery
Specific Plan	SP	Specific Plan

Source: Planning Network, 1991

FIGURE VIII-B-2



VACANT RESIDENTIAL LAND WITHIN THE CITY OF LANCASTER*

PLANNING NETWORK

- NU3
- NU4
- UR1
- UR2
- LR3
- MR1
- MR2

SOURCE: City of Lancaster Department of Community Development, 1991.

*Based on the Planning Commission Consensus Land Use Map of April 3, 1991.

CITY OF LANCASTER
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Table VIII-B-2
Proposed Residential Land Development Capacity
Within Corporate Limits

Land Use Designation	Zoning	Density	Total Acres Available	Maximum Number of Units
Rural Residential	RR-2.5	1 du/2.5 acres		
NU 2	RR-1	1 du/acre	86	34
NU 3	SRR	2 du/acre	1,265	1,265
NU 4			3,347	6,694
SUBTOTAL				7,993
Urban Residential				
UR 1	R-15,000	2.5 du/acre	156	390
	R-10,000	3 du/acre	6,513	19,539
UR 2	R-8,500	3.5 du/acre	290	1,015
	R-7,000	4.5 du/acre	16,193	72,869
UR 3	R-6,000	5 du/acre	916.5	4,583
	MHP	6.5 du/acre	916.5	5,957
SUBTOTAL				104,353
		Base Density		
Multi-Family Residential				
MR 1	MDR-1	7.1 du/acre	153	1,086
	MDR-2	7.1 du/acre	1,018	7,228
MR 2	HDR-1	15.1 du/acre	10	151
	HDR-2	15.1 du/acre	369	5,572
SUBTOTAL				14,037
TOTAL			31,233	126,383

Source: City of Lancaster Planning Commission Consensus Map, April 3, 1991

Past experience with development applications in the City of Lancaster, based on building permits issued by the City, shows that substantial residential development in the Lancaster study area was based on the economy and on the availability of affordable housing (see Table IV-B-1 in the Living Environment Chapter of this report). The 1990-1991 slowdown in building was due to the current recession and to the increase in the cost of housing. As the economy improves during the 1990s, building is likely to increase, although it is uncertain if it will reach the level of the mid-to-late 1980s. The population growth experienced in Lancaster over the last nine years was primarily composed of families with young children, and this trend will likely continue as these young households continue to seek affordable housing. However, as the population ages and the City continues to diversify toward a community where the majority of the people both live and work, the population composition will also change[1].

[1] Additional information regarding needs for residential land uses can be found in the Adequate Sites Analysis section of the Housing Element.

b. Needs for Commercial Land Uses

In the past the City has accepted the status of a bedroom community where residents commuted to other areas for employment. The City, therefore, did not designate substantial commercial land in the study area. This has required residents to shop in other communities, producing retail leakage (see the Economic Development and Vitality Chapter of this report). Estimates of retail leakage indicate that there is an opportunity to promote specialty type retail stores (other retail), apparel stores, eating and drinking establishments and auto related uses, and retail sales goods and services from office and industrial firms (other outlets) by attracting firms with high point of sale taxable revenues.

Since 1987, over 744,000 square feet of retail development has been approved, while 45,000 was approved for office uses. In 1989, 273,000 square feet of retail space was approved and 17,000 square feet of office space was approved for development in the same year. This increase in commercial development is in response to the needs of the growing residential market and indicates the beginning of local economic diversification. This new focus requires commercial and office land use designations, in addition to residential. The proposed General Plan would designate 2,581 acres (1 percent) for commercial; 18,483 acres (10 percent) for employment; and 3,831 acres (2 percent) for public facilities.

c. Needs for Industrial Land Uses

Attracting basic industry (manufacturing) jobs best meets local needs to diversify and strengthen the local economy. This is necessary for Lancaster to become a self-sufficient community. Over 88,000 square feet of industrial development was approved in 1988 for light manufacturing buildings, and this increased sharply in 1989 to 170,000 square feet of new industrial building.

Recent development trends in Lancaster show the continued predominance of residential development in Lancaster, with industrial uses providing only a small segment of approved projects. However, if more jobs are to be added to the local economy, significant amounts of industrial space will be needed in the future. Eighty five percent of the land designated for employment (industrial) uses is currently undeveloped. This will allow substantial industrial growth to accommodate the City's long-term goal of economic diversification.

d. Availability of Undeveloped Land

In 1991, the Lancaster Department of Community Development completed a land use inventory for the study area, based on the April 3, 1991 Planning Commission Land Use Consensus map (see Table VIII-B-3). Three separate areas were analyzed: land within the City boundaries, unincorporated land within the sphere of influence, and unincorporated land outside of the sphere of influence (expanded study area).

As previously discussed, there are seven general land use categories, combined from each land use designation defined in the Lancaster General Plan (Table VIII-B-1). Under the Consensus map, each category includes thousands of acres of undeveloped land.

Table VIII-B-3
Planning Commission Consensus Land Use Inventory
Within the Lancaster Study Area[1]

Land Use	City Acres		Unincorporated County Acres		Expanded Sphere of Influence		Total
	Dev	Undev	Dev	Undev	Dev	Undev	
Rural Residential	1,149	4,698	1,903	64,328	0	41,757	113,835
Urban Residential	6,687	24,985	1,875	11,685	0	0	45,232
Multiple Family Residential	1,022	1,550	58	11	0	0	2,641
Commercial	1,134	1,282	117	48	0	0	2,581
Employment	1,528	12,460	237	4,258	0	0	18,483
Public Facilities	1,303	1,587	51	0	1,780	0	4,721
TOTALS	12,823	46,562	4,241	80,330	1,780	41,757	187,493

Source: Lancaster Department of Community Development, April 3, 1991.

[1] Edwards Air Force Base area within the sphere of influence is not included in this table.

Note: Railroad and Freeway rights-of-way are not included in this table.

The present relationship between developed and undeveloped land is similar for residential and commercial/employment land uses. Within the City there is a total of 8,858 acres of rural, urban, and multiple family residential acres developed, while 31,233 acres are undeveloped. Therefore, there is a 3.5 to one ratio of undeveloped to developed residential land. Similarly, there is slightly over a five to one ratio of undeveloped to developed land designated for commercial/employment, with 2,662 acres developed and 13,742 acres undeveloped. Some public facilities, such as City Hall, the prison, and hospitals, have significant employment and traffic impacts, while city parks and the California Poppy Preserve do not have serious impacts on the study area.

The ratio between the types of land use reinforces the present residential and employment land use balance, while seeking to increase the jobs/housing ratio.

e. Land Use Interface Conflicts

One impact of recent rapid development in the Antelope Valley has been problems related to the interface between urbanizing areas and established rural communities like Quartz Hill and Antelope Acres. Quartz Hill was the first rural community to feel the pressure of urbanization, as residential subdivisions approved by Los Angeles County and the Cities of Palmdale and Lancaster began to appear in the area surrounding the community.

A primary concern of many Quartz Hill residents is protecting the rural character of their community. As urbanization continues, adjacent to their community, they fear it will lose its rural/small town atmosphere. This atmosphere is why many people chose to locate here and is reflected in the community structure. Much of the community is comprised of residential lots of one-half acre of greater. Horses and various farm animals are commonly maintained in residential areas throughout this community. In many areas, streets are unpaved, or where paved, do not include curb, gutter or sidewalks, and often are not lighted.

The residents of Antelope Acres also desire to retain what they perceive to be a rural lifestyle. Residential lots within the community are mostly 2-1/2 acres or greater. The residents maintain horses and other livestock on a limited basis and conduct small scale crop production. Streets, for the most part, are unpaved. Unlike Quartz Hill, however, Antelope Acres has yet to experience the effects of urbanization adjacent to the community. However, this is likely to change. The City of Lancaster has annexed land directly west of Antelope Acres and has approved several large scale subdivisions within these annexations. One of these is the Del Sur Planned Community which, when developed, will provide approximately 2,400 dwelling units, as well as a commercial center, schools, and a park.

One of the more important problems that will face the communities of Quartz Hill and Antelope Acres as urbanization continues will be the effect of increased traffic on the road systems within these communities. Many of these roads are not improved to urban standards, nor designed to carry urban traffic loads. Quartz Hill will probably be seriously impacted, since sections of the proposed arterial expressway are planned to pass through the community along Avenue L and 50th Street West.

Another area of potential interface problems could occur between future land uses surrounding the Mira Loma Detention Facility, which is the site of the new maximum security state prison. Presently, most of the land surrounding the Mira Loma site is vacant and designated for rural residential uses. However, several urban density subdivisions have been approved within the immediate vicinity of Mira Loma, and others are in the proposal stage. It is uncertain at this time what interface problems might occur if the land surrounding the Mira Loma site were to develop at urban residential densities.

f. Incompatible Land Uses

Land use compatibility refers to the ability of specific uses to coexist without significant conflict. As a general rule, compatibility means that a land use will not be detrimental to the residents', workers', and/or patrons' use and enjoyment of another property.

To be compatible, uses do not need to be similar; dissimilar uses can be compatible. In other cases, potential conflicts can be mitigated so as to create harmonious relationships between uses which might otherwise be incompatible. General factors to be assessed in determining the compatibility of two land uses include: ultimate land use objectives, intensity of use, hazards and nuisances, aesthetics and design, and economic and public use factors.

There are several areas within the City which contain incompatible land uses. Most of these existed prior to City incorporation. Two areas which merit special attention are the Avenue I Corridor and an area designated for industrial land use located in the South Lancaster area.

The Avenue I Corridor includes a strip of land uses located along both sides of Avenue I between 7th Street East and 40th Street East. Historically, the County of Los Angeles zoned this portion of Avenue I to permit agricultural, commercial, industrial, and residential development. This encouraged a mixture of land uses, which resulted in incompatible uses locating next to one another. Following incorporation, the City adopted a policy designed to encourage the replacement of the scattered industrial and commercial uses along the corridor with residential uses. The intent was to permit commercial land uses at major intersections, with the rest of the corridor devoted to residential development. However, due to the requests of property owners, the policy was essentially abandoned and the Corridor remains an area of mixed land uses with the potential for conflicts between users.

The second area is bounded by Avenue L, Avenue M, Sierra Highway and Challenger Way. It consists of small scale industrial and commercial uses, intermixed with older residential uses, many of which were constructed during the 1920s. Prior to City incorporation, the County zoning permitted residential uses to locate in this area. However, when the City adopted the original General Plan in 1980, it designated this area for industrial uses. Consequently, this portion of southern Lancaster has developed mixed residential and industrial uses, which are not always compatible. The long term goal for this area is the transition to industrial uses.

g. Existing Land Uses and the General Plan Land Use Map

Existing land use can have a significant impact on both the development intensity and amount of acreage for a specific land use. For example, an existing commercial use within a residential designation, though non-conforming, may be permitted to continue and preclude the use of that land as residential. Also, an existing low intensity residential development, though designed for a higher intensity, may never be built out to permitted capacity if the land owner so chooses. These factors may result in differences between the actual and conceptual land use acreage and intensities for various land use types.

h. Tools for Land Use Regulation and Control and General Plan Implementation

(1) Zoning Ordinance

The zoning ordinance is the primary implementation mechanism for the Plan For Physical Development and the General Plan Land Use Map. The distribution of residential, commercial, and industrial designations is based on the land use patterns established on the General Plan Land Use Map. The zoning ordinance codifies these land use patterns. It is the law that specifies permitted uses and sets performance and development standards such as minimum lot size, maximum building height, and minimum front yard depth. A typical zoning ordinance describes the different zones which may be applied to land within the community.

(2) Subdivision Ordinance

In general, land cannot be divided in California without local government approval. Dividing land for sale, lease, or financing is regulated by local ordinances, based on the State Subdivision Map Act. The subdivision ordinance governs the design of the subdivision and the types of improvements (street construction, sewer lines, drainage facilities).

(3) Development Agreements

A city and a developer may enter into a contract for a specific time whereby the city agrees to 'freeze' its land use policies and regulations that relate to a project, in return for specific concessions from the developer (Government Code section 65862). This type of agreement insulates the project from future changes in city planning policies and regulations that may occur during the development process. Because the agreement commits the city to a particular project design and limits its regulatory powers well into the future, this type of long-term commitment should be carefully studied.

(4) Specific Plans

The land use map and the Plan For Physical Development require the preparation and implementation of specific plans for certain areas of the City. The General Plan establishes broad parameters of development on a long term basis. A specific plan, on the other hand, is designed to identify particular land uses and development standards relating to a specific area, site or development proposal.

Section 65451 of the Government Code requires that specific plans include regulations, conditions, programs, and proposed legislation concerning the following:

- Development standards and precise location for land use and facilities;
- Standards and locations designated for streets, roadways, and other transportation facilities;
- Standards indicating population density and building intensity and provisions for supporting services and infrastructure;
- Specific standards designed to address the use, development, and conservation of natural resources; and
- Provisions for the implementation of any other measures that may be required to implement the General Plan.

Specific plans can serve the best interests of the City by establishing detailed controls on the nature of future development and can also benefit the developer by facilitating subsequent development plans within the area governed by the Specific Plan.

(5) Other Implementation Measures

Other ordinances and regulations that are tools for regulation and land use control include: flood protection, historic preservation, design review, hillside development control, growth management, impact fees, traffic management, and sign control. Local ordinances may also be adopted in response to state requirements. Examples include: surface mining regulations (Surface Mining and Reclamation Act); and earthquake hazard standards (Alquist-Priolo Special Studies Zone Act).

C. COMMUNITY FORM

1. EXISTING SETTING

a. The Physical Environment

The Lancaster study area is approximately 340 square miles of flat, desert land. Major landforms include the San Gabriel Mountain ranges and Quartz Hill to the southwest, the Antelope and Fairmont Buttes in the western portion of the study area, and Little Buttes in the north central portion of the study area. Scenic views of the desert are available throughout much of the study area.

There is an increase grade of only 700 feet from 2,300 feet in the central portion to roughly 3,000 feet at the California Aqueduct. There are some hilly areas within the study area, particularly in the vicinity of Quartz Hill and south of the Antelope Valley Poppy Preserve. The western portion of the study area is also characterized by large areas of flat, vacant, or formerly cultivated agricultural lands. Evidence of former agriculture activities can be found throughout the study area, such as abandoned shacks and old fences. In the eastern area, windrows of large trees are the only remnants of previous farming activities.

There are several washes in the study area that carry water from the surrounding mountain ranges during major storms. These washes include Amargosa, located along the Antelope Valley Freeway, Little Rock Wash, found in the eastern portion of the study area roughly between 60th and 70th Street East, Beverly Wash north of Avenue D, and a variety of washes extending down from the Portal Ridge southeast of the California Aqueduct (the southwestern boundary of the study area).

There is an abundance of open space in the study area. The unique desert atmosphere of the area is associated with Joshua Trees and Juniper shrubs. These plants are most plentiful in the eastern and southern portions of the study area. Low-lying desert scrub is found in the majority of the north-central and eastern portions of the study area.

b. Current Development

Current development in Lancaster is similar to hundreds of conventionally styled suburbs developed in Southern California since World War II. This type of suburban development is dominated by areas designated for single-use zoning (i.e., shopping centers, office parks, housing tracts, etc.) and is organized almost exclusively around the automobile. The predominate form of housing is the single family tract house, interspersed with scattered clusters of multiple-family units.

Lancaster is presently characterized by two distinct patterns of development. The downtown area developed as a mixed-use neighborhood, while more recent developments follow the conventional sprawling suburban pattern. The residential neighborhoods built in the 1950s generally contain an elementary school (e.g., Monte Vista, Sierra, Mariposa) that serves as the "core" of the neighborhood, as opposed to more recent neighborhoods that, in many cases, lack any unique identity.

There are several different types of commercial development in the study area. Strip commercial development is found in the downtown area of Lancaster, particularly along Lancaster Boulevard and Sierra Highway. Found across the United States, this type of development was originally designed for pedestrian usage and is prominent in pre-World War II developments. However, attempts to orient this style of commercial development to the automobile, such as along Avenue I, have been less attractive. Increases in traffic along the fronting streets, adding of traffic lanes, and the creation of large signs, oriented towards the motorist instead of the pedestrian, created visual blight and noise in many of these commercial areas. In general, strip commercial areas in Lancaster are oriented towards the automobile, and are characterized by haphazard building arrangements, inconsistent design, minimal landscaping, and the proliferation of signs. As a result, business activities along several strip commercial areas appear to be dwindling. Many businesses have moved to malls. For example, in Lancaster several of the auto dealers along Sierra Highway moved to the Auto Mall along the Antelope Valley Freeway.

As people began to move from the City center into single family developments, corner malls became the most common place to shop. These shopping centers have attached stores most often arranged in a linear or L-shaped pattern with large parking lots in front. New commercial uses in the form of malls and retail centers are found along the Antelope Valley Freeway.

In addition to commercial and residential uses, there are several major public institutions found in the study area. These include Mira Loma Detention Facility, Antelope Valley College, the three area hospitals, and General William Fox Field. These uses have unique characteristics that distinguish them from other land uses. However, these public institutions are inwardly focused; that is, the emphasis is on the building and a large parking area surrounding the structure. These institutions do not have a large external effect on the public space surrounding them (other than generating traffic) or on the development pattern or form of the study area.

2. ANALYSIS

a. Hillside Development

Although the study area is predominantly flat, there are hilly areas planned for future development. Some of the problems related to building on hillsides are landslides, erosion and sedimentation, flooding, loss of scenic areas for public use, and loss of the form and configuration of the hill itself. Consequences of improper hillside construction can result in loss of life and personal property, as well as degradation of the natural environment. Solutions to ensure that hillside development conforms to the community design standards include blending structures with the surroundings by incorporating natural materials, reduced heights, massing, and native landscaping into the designs. Some of the methods of making hillside development attractive and safe are to minimize the blocking of views, encourage variation in lot size and in unit placement, and encourage architectural variation. In special cases, the City may want to restrict residential development in sensitive hillside areas.

b. The Grid Street Pattern

When Lancaster was settled, narrow streets were laid out in a one-mile grid pattern. The grid pattern of streets, based on the township and range survey system where each square mile forms a section of a township and range, was used throughout much of the United States to divide land. These square or rectangular blocks of land have been the basis of city design. In the grid system,

the streets are clear and easy to follow, but the design has been criticized for its visual monotony, disregard of topography, vulnerability to through traffic, and lack of differentiation between heavily traveled and lightly traveled ways.

Another major complaint with the grid is its appearance. Without special attention to the streetscape, including building design/location, landscaping, wall treatments, and setbacks, the grid tends to be monotonous mile after mile of straight road. Lancaster has attempted to address some of these issues by requiring decorative wall and landscape treatments and increased setbacks along arterial streets. However, the general lack of varied topography and landmarks, along with monotony of building design in residential tracts and commercial centers in the study area, has resulted in lack of identity. In addition, the segregation of land uses led to solid walls and difficulty in walking between various uses, making the streets of the study area generally devoid of any activities other than driving.

In trying to eliminate some of the visual monotony associated with their grid street pattern, many cities are looking at street design, subdivision design, and their treatment of intersections.

c. The Streetscape

The function and appearance of the streets are a major element of the City. The streetscape is composed of not just the streets, but the signs, lights, parking, sidewalks, and street furniture that line the street, as well as the existence (or lack) of pedestrian use. Below are listed a number of elements of the streetscape and how they could affect the image of the street.

Sidewalks Sidewalks are a major streetscape element. Texture and color can be visual enhancements for pedestrians and motorists. Sidewalks do not have to follow the roadway, but may curve in response to natural or manmade contours.

Landscape Landscaping, the use of various plant types, and the placement and maintenance of vegetation, may be used to improve the image of the street and to reduce the heat and glare of the pavement. Some guidelines include:

- Spacing of trees can be used to create the character of the street. Regular spacing suggests a formal, planned environment and gives a feeling of enclosure for drivers and pedestrians. Irregular spacing creates an informal atmosphere in which the street space is not defined.

- In addition to tree spacing, tree shape and height can be used to differentiate streets.

- Trees, shrubs, and groundcovers can be used to define and separate pedestrian space from the street.

- Distinctive tree types and planting patterns for shrubs and groundcovers can help provide a unique identity for communities and commercial districts. These identities may include seasonal variations through use of flowering plants or foliage with changing color.

- Changing the tree, shrub, or groundcover species can be used to identify an important activity area.

Parking Design Parking can be provided in several ways; on the street, in small parking bays, in large parking lots, and underground, or in structures. Parking stalls may be parallel, perpendicular, or angled. Parking lot treatments may include aisles for pedestrians, raised and painted stripes in the desired direction, tree planting and screened with walls, landscaping, or berms.
Street Furniture Normal street furniture in an urban setting includes seats, traffic signals, signs, utility poles, light poles, meters, trash cans, fireplugs, clocks, plant containers, newsstands, telephones, bollards, bus shelters, and notice boards. The placement of street furniture can support pedestrian activity, while a lack of it can limit use of an area. Furniture can enhance activity locations, while spaces and seats can create attractive and comfortable bus stops, to make using public transit more appealing.

Lighting Lighting does not have to be applied merely to alleviate the fear of crime and satisfy the requirements of drivers and pedestrians. Artificial lighting can also be used as part of the overall streetscape to highlight landscape features or building design elements, define paths, or enhance the texture of various objects. Lighting can be placed at various heights to create different effects; high-level lighting often conveys an expansive character, while low-level lighting has a quiet, intimate ambiance.

Berm Treatment Changes in levels of land may also become space definers. Berms can make a good separation between the traffic of a busy street and the sidewalk.

Median Treatment Medians may be used to differentiate the hierarchy of streets through different design treatments. Street medians in Lancaster are often barren concrete blocks, but they offer the opportunity for improvement of the streetscape through landscaping, texture, and color treatments.

Intersections The intersections are an important part of the overall streetscape. The treatment of the intersections, including the setbacks, height, and locations of buildings, landscaping, walkways, and street furniture, can convey a sense of arrival, emphasis, or indicate the character of the neighborhood. Some intersections may incorporate gateway elements to mark a transition into a new community. Providing generous landscaped areas, larger setbacks, and meandering walkways gives an open, airy feel to the intersection. Other intersections along local streets may repeat some of the elements of major intersections, but emphasize a more intimate, comfortable atmosphere, through close placement of buildings and more formal patterns.

A particular problem at major intersections is that of pedestrian movement. The design of conventional development, with its exclusive reliance on the automobile, necessitates the provision of wide intersections that are difficult and unpleasant to cross. Although this problem cannot be completely solved within conventional developments (see discussion under alternative design concepts), the placement of wider medians (to break up the pavement expanse), longer signal phasing, and use of special pavement treatments within crosswalks can improve the situation.

Walls and Fences Walls and fences are utilized to define space, but can also contribute to monotony and lack of community. In Lancaster, concrete walls have been built along roadways to provide privacy for homeowners. Unfortunately, these walls appear as never ending rows of concrete with no visual relief. Several different options exist to remedy this situation. Subdivisions may be designed so cul-de-sacs face major streets, allowing the use of wrought iron or other "see through" materials to be incorporated into the wall at the end of the cul-de-sac. In some areas, landscaping or berms may be used instead of walls or fences to form a barrier and create visual interest.

d. Subdivision Design

The typical subdivision design that predominates in Lancaster has created several problems in terms of community form. These developments are often monotonous, the result of endless miles of walls along streets, the lack of building or use diversity, and the repetitive landscaping. In addition, the primary consideration in subdivision design in Lancaster is the movement of vehicles, resulting in the creation of residential areas better suited for the automobile than for people.

A number of alternatives can be utilized to improve the design of subdivisions. In some communities, recreational amenities such as walking and biking trails, private parks, and community buildings have been provided in conjunction with subdivisions. The use of curvilinear streets has been promoted in some jurisdictions to help avoid the monotony sometimes created by long, straight streets (although this often increases costs by using the land less efficiently). The use of well-designed zero-lot line units and varied building setbacks can also help improve the appearance of typical subdivisions.

e. Neo-Traditional Development Concepts

In recent years, there has been increasing interest in alternatives to conventional suburban development. The present form (since World War II) of suburban growth, dominated by areas designated for single-use zoning and organized exclusively around the automobile, has, in the view of some critics, destroyed the cohesiveness and sense of community evident in pre-World War II neighborhoods. This pattern of growth has also contributed to economic segregation (lack of affordable housing), and has been a major cause of environmental damage from vehicle air pollution and destruction of sensitive habitats due to sprawl.

The problems of suburban sprawl, so evident in the San Fernando Valley and Orange County, are beginning to be evident in Lancaster. Despite an almost universal desire to not become "another San Fernando Valley," strict separation of single uses, such as shopping centers, office parks, low-density walled uniform housing tracts and large apartment complexes, are common in the newer areas of the City. Traffic flow is also increasing on City streets, as residents are forced to drive ever increasing distances from single-use residential areas to employment, retail, and recreational uses. The typical response has been to widen roadways and lessen densities to try and reduce traffic congestion, which actually worsens the problem by creating additional low-density sprawl, encouraging additional driving, and contributing to a further loss of community identity, as more single-use neighborhoods are created.

The costs to the City of continuing this pattern of growth are enormous. The amount of infrastructure and costs of service necessary to serve this development pattern are excessive in relation to the revenue received. In short, there is too much infrastructure serving too little development, particularly roadways. Costs of transportation infrastructure alone can reach 40 percent of total infrastructure costs in suburban areas of Orange County. While Lancaster is considering a fiscal impact model to try and balance out this cost/revenue inequity, the inefficiency of the pattern itself drains resources that might otherwise be available for schools, libraries, or other services, as well as raising the cost of housing. In addition to the economic costs, the City as a whole incurs environmental costs (loss of sensitive habitat, increased runoff and air emissions, etc.) and social costs (lack of affordable housing, sharp economic segregation, and loss of community identity).

A number of suburban critics, such as Peter Calthorpe and Andreas Duany, believe the answer to suburban problems is to develop the suburbs in alternative development schemes based on pre-World War II concepts. These critics have pointed out, justifiably, that more traditional neighborhoods, such as Georgetown in Washington, D.C. and Coral Gables, near Miami, have retained their value and attractiveness even in the face of nearby decline. These alternatives are known by different names, including neo-traditional design, the pedestrian pocket, and the urban village (in this discussion they will be referred to as "neo-traditional"). While each of these styles has its own characteristics, they all share some consistent design principles:

Fully Integrated Mixed Uses Neo-traditional developments do not follow the conventional suburban model of strictly separated uses that are usually "buffered" by walls or greenbelts. Instead, the uses are mixed and integrated: Dwelling units are located above retail and office uses; townhouses, apartments and single family dwellings are all located in close proximity to each other and various civic, commercial and institutional uses. The typical neighborhood contains all the uses necessary for daily needs, and often provides a significant amount of employment for its residents, unlike the typical conventional pattern of single-use neighborhoods. Providing a mix of uses and dwelling unit types within a single neighborhood encourages economic and social integration, as well as reducing vehicle trips.

Pedestrian Emphasis Neo-traditional developments are designed to encourage walking rather than driving. The typical neighborhood is designed so that retail, school/civic, recreation, and employment uses are no more than 1/4 to 1/2 mile away, which is the maximum distance that most people will walk for daily errands. The streets are normally narrow, designed to force vehicles to move slowly, and arranged in a grid or modified grid pattern.

Although a grid system of streets is often viewed negatively in conventional development, it is not regarded this way in neo-traditional neighborhoods. The difference can be attributed to the manner in which the streets are designed; i.e. as a public space for both cars and pedestrians. The visual improvement in the streetscape that occurs as a result of this design treatment normally results in a more aesthetic community, without the artificial imposition of curvilinear streets. The grid network shortens walking distances and disperses traffic along a number of alternate routes. The intent is to accommodate the automobile, but not use it as the primary urban design factor, as is done in conventional suburban development. The mix of uses, combined with the emphasis on walking, reduces vehicle travel and the need for large streets.

Creation of a "Sense of Place" Neo-traditional developments rely heavily on urban design elements and concepts, including use of scale, to establish the "public realm" and create a "sense of place" that are normally lacking in conventional suburban development. (Note: The "public realm" is defined as areas where the general public has access and interacts, as opposed to the "private realm," such as back yards.) The neo-traditional development is based upon the neighborhood as the basic unit of planning. Neo-traditional development does not attempt to create a sense of urban design at a city-wide scale, as is common in conventional development; instead, it is developed at a neighborhood scale and project-level scale, with the aim of creating a comfortable atmosphere that encourages interaction and pedestrian movement. Even though the developments are not designed at a city-wide scale, their uniqueness results in them becoming places of interest and activity that stand out from conventional development.

Neo-traditional neighborhoods are normally organized around a central public square or park, flanked by major civic/institutional, retail, and residential uses. Emphasis is placed on the size, scale, and appropriateness of *buildings*, rather than *uses*, as is the case in conventional suburban development (although controls on uses do remain). The buildings and landscaping are also utilized to sharply define public space (including the streets), meaning that setbacks are normally minimal. Parking is accommodated in the rear of the buildings, on the street, or, occasionally, in small "side-on" parking lots. Prominent buildings, squares, and other civic structures are strategically placed at the end of street vistas to serve as landmarks in the neighborhood. This use of design elements enhances the pedestrian scale of the development and helps to encourage walking, while acting to clearly identify the neighborhood as a "special place."

Constraints and Opportunities There are a number of constraints to creating neo-traditional development within Lancaster. A major constraint is the fragmented ownership pattern of land within the City, which limits the sites that can be used for a significant development. In addition, several of the largest holdings, such as Del Sur Ranch and Serrano Ranch, are already approved for conventional-style development. The City's present development requirements, which emphasize and encourage conventional development, are also a constraint to the development of neo-traditional projects. These projects would violate a number of the City's typical development standards, including street width, parking, and setbacks. Although neo-traditional proponents argue strongly that these development schemes are superior to conventional style suburban sprawl, there are questions as to whether the generally positive image that the individual single family home and car-centered lifestyle have in Lancaster would cause neo-traditional development to be viewed negatively. It is unlikely that neo-traditional concepts could be effectively implemented unless they come to be viewed as a positive alternative to current land use patterns.

The most promising opportunities for creating neo-traditional neighborhoods appear to be in the large-scale planned communities that may develop on the periphery of the City. In the past, the City has utilized the specific plan process to establish developments, such as Serrano Ranch, that contain a mix of uses and housing styles, along with recreational and public facilities (schools, fire stations, etc.). However, these developments are normally designed in a conventional pattern that separates the uses, discourages pedestrian movement, and is oriented toward the automobile. The City could utilize the specific plan process to allow, and even encourage, the development of large-scale neo-traditional projects, if it is deemed desirable to do so. Incentives, such as relaxation of zoning standards, reductions in impact fees (based on less impact to City infrastructure), or additional density, could also be used to encourage the use of neo-traditional concepts. These concepts could also be applied at various locations (such as at activity nodes) to help provide a sense of place and interest within the urban area of the City. Since the General Plan is a long-term document to guide growth, it may be prudent for the City to develop policies and specific actions that will allow and encourage the creation of neo-traditional projects for those who choose to build or live within them.

D. INTERAGENCY LAND USE COORDINATION

1. EXISTING SETTING

This section identifies the differences in land use plans, controls, and development standards between areas within the City and its planning area, between the Cities of Lancaster and Palmdale, and between Lancaster and Los Angeles County. For effective development and the protection of open space, coordination between adjoining jurisdictions and the City of Lancaster is necessary. In addition, regional projects that influence land use, such as municipal facilities and highways, must also be coordinated to ensure effective results. Jurisdictional coordination is crucial if any aspect planning is to be successful.

a. Comparison of Land Use Plans, Controls, and Development Standards

Planning law directs that all cities preparing a General Plan address concerns within its area of jurisdiction and any land outside its boundaries which bears relation to its planning (Section 65300). In defining a general plan study area, it is common for a city to use its sphere of influence. The sphere is defined in the law (Section 54774 of the Government Code) as "a plan for the probable ultimate physical boundaries and service areas of a local government agency." In determining the sphere, the Local Agency Formation Commission (LAFCo), the agency that oversees city incorporation, considers "... the type of development occurring or planned for the area, including but not limited to residential, commercial and industrial development; projected future population growth of the area; and the present and probable future service needs of the area."

Lancaster's sphere of influence (see Figure VIII-1) is important to land use planning within the City, even though the City has no regulatory powers over those areas of the Sphere outside the corporate limits. The City establishes land use designations for all areas within its sphere of influence as a means of formally communicating land use concerns for areas of the sphere. This cooperative planning can be used to guide the orderly and efficient extension of services and utilities, ensure the preservation of open space, agricultural, and resource conservation lands, and establish consistent standards for development in the plans of adjoining jurisdictions.

(1) Agency Coordination

(a) City Influence on Land Use Patterns

The City influences land use patterns through the planning process by:

- establishing community development objectives;
- conducting research on growth and development;
- formulating development plans and programs;
- increasing public understanding and acceptance of planning;
- providing technical service to other governmental agencies and private groups;

- coordinating development activities; and
- administering land use controls.

In shaping land use patterns, the City creates a framework of overall development in the City by establishing goals, objectives, and policies in the General Plan that are then officially approved and periodically reviewed. These policies then serve as both a checklist and directive for the City's land use activities and establish clear direction for public improvements.

(b) City Coordination with Other Public and Private Agencies

Other public/private agencies, such as water, sewer, and other utility providers also shape land use patterns by their ability to provide service. Coordination between the City and other appropriate public/private agencies ensures that adequate utilities are provided in concert with the phasing and timing of future development in an area. If public utility agencies are not able to provide adequate service to a particular area, development cannot occur.

Coordination among the various public agencies of Lancaster and surrounding jurisdictions is, therefore, an important part of the planning process. At a minimum, effective coordination ensures that there is consistency between future land uses and public utility and service improvements, and between City public projects and plans associated with different levels of government and surrounding jurisdictions.

The following identifies those services and facilities within Lancaster that are provided by other agencies.

Water In addition to the Antelope Valley-East Kern Water Agency (AVEK), which is a wholesale distributor of water, the Lancaster study area is served by the following twelve (12) retail water districts or mutual water companies:

- Los Angeles County Waterworks District No. 4.
- Quartz Hill Water District
- Palm Ranch Irrigation District
- Antelope Valley Water Company
- White Fence Farms Mutual Water Company
- Antelope Park Mutual Water Company
- Landale Mutual Water Company
- Averydale Mutual Water Company
- Green Grove Mutual Water Company
- Lancaster Water Company
- Sixteenth Street West Tract Water Company
- Fortieth Street Mutual Water Company

Three of these purveyors serve a majority of the developed portions of the City, including the surrounding unincorporated areas: the Antelope Valley--East Kern Water Agency (AVEK); Los Angeles County Waterworks District No.4; and the Quartz Hill Water District.

Future developments occurring in any of the agency boundaries are expected to coordinate with the appropriate water district to determine the adequacy of water supply. Developers are then required to meet with the City Engineer to determine the process of providing improvements to ensure adequate service to the project. Developers will pay fees for their portion of local and regional water improvements. (For more information, see Municipal Services and Facilities, VI-A.)

Wastewater The collection, treatment, and disposal of wastewater within the City of Lancaster and the surrounding unincorporated areas is under the jurisdiction of Los Angeles County through Sanitation District 14.

County Sanitation District 14 maintains twenty-one regional trunk sewer lines, serving the majority of the developed portions of Lancaster. Local sewer lines, located in most City streets, are owned by the City of Lancaster and maintained by the Public Works Department.

Coordination between the aforementioned sewer agencies will ensure that adequate collection, treatment, and disposal facilities are available. Additionally, interface with the City Public Works Department is necessary to ensure that hookups to pipes and City facilities are available. (For more information, see Municipal Services and Facilities, VI-B.)

Flood Control and Drainage In 1985, the Los Angeles County Department of Public Works developed the "Antelope Valley Master Plan of Drainage" to evaluate ways of providing regional flood protection and helping to recharge the groundwater basin. The Lancaster portion of the County Master Plan is divided into seven major planning areas: Amargosa, Anaverde, Fairmont, Pearland, Portal Ridge, Little Rock, and Big Rock. A variety of flood control facilities are proposed in each planning area, including open channel (earthen and/or concrete) and underground storm drains that connect to retention or detention basins. Flood plain management (non-structural measures) is also proposed in all of the headwater areas of the foothills. Lancaster has prepared a City Master Plan of Drainage which incorporates elements of the County Master Plan. Future developments are expected to comply with requirements of the plan, through coordination with both the County Department of Public Works and the City Public Works Department, to ensure the availability of sufficient stormwater facilities. Developers will be expected to pay fees for their portion of local and regional storm drain improvements. The effects of the last ten years of development in Palmdale (upstream) during the 1980's has increased runoff into the Lancaster area, particularly in the Quartz Hill area. This poses increased danger from the effects of a 100-year flood. The lack of coordination between the Cities of Palmdale and Lancaster on drainage matters could result in larger flooding problems for Lancaster. (For more information, see Municipal Services and Facilities, VI-C.)

Solid Waste Two private companies provide the majority of solid waste collection and disposal services to this portion of Antelope Valley: Waste Management of Lancaster and Antelope Valley Rubbish (also called the Palmdale Disposal Company). As part of the City's efforts to meet the Integrated Waste Management Act of 1989 (AB 939), in July 1991, the Lancaster City Council approved a trash franchise agreement with Waste Management of Lancaster and Antelope Valley Rubbish. Through this agreement, Waste Management of

Lancaster received the right to serve residents north of Avenue L, while Antelope Valley Rubbish is to serve residents south of Avenue L. Rubbish is disposed of the Lancaster Sanitary Landfill and the Palmdale Landfill.

Waste management has estimated that the remaining life of the Lancaster Sanitary Landfill is five years, based on present volumes, although the Los Angeles County Prison EIR indicated that the landfill will close around 1992. There are expansion plans for both of the landfill sites.

Future developers must coordinate collection services with either Waste Management of Lancaster or Antelope Valley Rubbish, and disposal activities with the Lancaster Sanitary Landfill or Palmdale Landfill. If these landfills are not able to accommodate future disposal needs, the following agencies are required to review and approve any landfill expansion:

- Los Angeles County Planning Department
- Los Angeles County Planning Commission
- Los Angeles County Department of Public Works
- California Department of Health Services
- South Coast Air Quality Management District
- California Regional Water Quality Control Board-Contamination

An engineering study by the Lancaster Department of Public Works examined the potential for waste to energy cogeneration systems at existing, or future, landfills. In addition, the City may want to investigate working with the Southern California Gas Company and Southern California Edison Company to encourage local businesses to substitute natural gas-generated electricity in lieu of purchased electricity. Information on the benefits of cogeneration could be provided by the City to large, potential new energy users within the City.

Two pieces of legislation, The California State Solid Waste and Resource Recovery Act (1972) and AB-2948 (1986), required counties to prepare a comprehensive waste management plan and a hazardous waste management plan, respectively. Los Angeles' Solid Waste Management Plan is designed to work in conjunction with the County's Hazardous Waste Management Plan. These County plans identify planning and siting criteria for disposal and other types of waste management facilities. The City of Lancaster has adopted Ordinance 560, which uses the Los Angeles County Hazardous Waste Management Plan as a base, but establishes more stringent siting criteria for hazardous waste facilities. The Integrated Waste Management Act of 1989 (AB 939) requires cities and counties to recycle 25 percent of their waste by 1995, and 50 percent by 2000. The City of Lancaster is currently working with a consultant to meet the requirements of this legislation. (For more information, see Municipal Services and Facilities, VI-D).

Electricity and Natural Gas Southern California Edison provides services to Lancaster, while Southern California Gas Company provides natural gas. Future developers need to coordinate development with hookups to existing systems. Fees may need to be paid if additional facilities are required. Through the development process, the City solicits input from these service providers, particularly in the case of large developments. (For more information, see Natural Environment, II-E.)

(c) Coordination with Major Federal, State, and Regional Agencies Within or Adjoining the Study Area

There are several major agencies which are partially or completely located within, or adjoin, the study area. These consist of Edwards Air Force Base, General William Fox Air Field, Air Force Plant 42/Palmdale Regional Airport, and Mira Loma Correction Facility, which includes a state prison currently under construction. Primary among the various factors affecting the full utilization of an airport's capacity are incompatible land uses in the vicinity of the airport. This fact was recognized early by the California Legislature, which in 1969 enacted statutes creating county-wide Airport Land Use Commissions (ALUCs). The basic charge for these commissions was to develop and implement land use plans "...for the orderly development of each public use airport in this state and the area surrounding these airports so as to promote the overall goals and objectives of California airport noise standards...and to prevent the creation of new noise and safety problems."

An Air Installation Compatible Use Zone (AICUZ) has been established around each of the Air Force facilities. The AICUZ program encourages compatible land uses within areas adjacent to the particular air base on the basis of noise, overhead flights, and accident rates. For this reason, proposals concerning development within the AICUZ require coordination between the City and the Edwards Air Force Base in general, and Air Force Plant 42 in particular. (For more information, see Public Health and Safety, III-D.)

Mira Loma Detention Facility This detention facility, located west of downtown Lancaster, is governed by the County Department of Corrections. Under the State of California Emergency Preparedness Plan, the State Department of Corrections acts as an advisory board responsible for evaluating and recommending land use surrounding corrections facilities, while the City is the approving authority for regulating land uses and developments surrounding the facility. Therefore, any future proposal within the Emergency Plan area requires coordination between the City and the State Department of Corrections. In 1991, construction began on the first state prison in Los Angeles County on the Mira Loma Detention site. This new 2,200 bed facility is planned to open in the fall of 1992.

(2) Land Use Classifications Between Jurisdictions

County of Los Angeles The Land Use Policy Map in the Los Angeles County General Plan designates eleven land use classifications: Non-urban Residential, Low Density Residential, Low/Medium Density Residential, Medium Density Residential, High Density Residential, Major Commercial, Major Industrial, Public and Semi-Public Facilities, Open Space, Rural Communities, and Significant Ecological Areas. The Lancaster General Plan and land use map establish nine land use classifications, including Residential, Commercial, Industrial, Health Care, Schools, Public, Open Space, Parks, and Cemeteries. For a comparison of land uses, see Table VIII-D-1.

In establishing future land uses within the Sphere, it is important to consider the general conditions and development standards of the County. This will help reduce future land use incompatibilities between the City of Lancaster and the County of Los Angeles.

City of Palmdale The City of Palmdale, directly south of Lancaster, presently covers approximately 80 square miles, and has a planning area covering close to 150 square miles of primarily undeveloped land. Palmdale currently designates seven land uses (see Table VIII-D-1).

Currently, the City of Palmdale is updating its General Plan. Palmdale has indicated that the northeastern area of Palmdale, north of Air Force Plant 42 to the southeastern boundary of Lancaster, will be designated industrial, and is currently considering programs to promote industrial use in the area. This land use was designated by Palmdale due to the fact that much of the area is within flood zones, and a portion lies within the accident potential zone of Air Force Plant 42.

Adjacent land uses in Lancaster, light industrial uses along Avenue M between State Route 14 and Division Street, medium industrial uses along Avenue M between Division Street and 10th Street East, and business park designation between 10th Street East and 20th Street East, are generally compatible with Palmdale's industrial designated land. However, along Avenue L east of 20th Street East is an area of land which includes a mix of urban and rural residential land use designations. There is potential for conflict between these land uses and the traffic generated by the proposed industrial uses in Palmdale.

b. Impacts of Circulation Plans on Land Use

The City of Lancaster is responsible for maintaining existing roads, as well as planning for future streets, within their boundary. The Antelope Valley Freeway and roadways outside the City boundary are the responsibility of several agencies discussed in the following sections.

(1) Southern California Association of Governments (SCAG) Regional Mobility Plan

Planning for growth is the chief objective of the Southern California Association of Governments (SCAG). Due to the influence of mobility on growth patterns, SCAG is responsible for developing and adopting the biannual Regional Mobility Plan (RMP) and many sub-regional studies. The Regional Mobility Plan identifies how mobility is to be maintained, congestion mitigated, and air quality enhanced in the region. The goal of the Plan is to retain the transportation mobility levels of 1984. To achieve this, various methods are used, which include providing sufficient capacity for the transportation demands of people and goods, inducing changes in travel behavior, maximizing the use of existing facilities, protecting the environment, and supporting a pattern of development that shortens trip lengths through improved jobs/housing balance. One of the preferred strategies is for SCAG to work with county and local governments to encourage a better balance of jobs and housing in subregional areas.

Although no current improvements were funded in the study area, in a 1990 Palmdale/Lancaster Area Transportation Study (1990), SCAG recommended several improvements. This document was needed to supplement SCAG's regional models and improve local forecasting procedures in order to support the strategic transportation planning process in this area of rapid development. (For more information on specific planned roadway improvements, see Physical Mobility, V-A.)

Table VIII-D-1
Land Use Comparison

City of Lancaster	County of Los Angeles	City of Palmdale
NU1 - Nonurban Residential Very Low Density; 1 dwelling unit per 10 acres	Nonurban Residential (0-1 du/ac)	Rural Residential and Equestrian Residential
NU2 - Nonurban Residential Rural Residential; 1 dwelling unit per 2.5 acres		
NU3 - Nonurban Residential Low Density; 1 dwelling unit per acre		
NU4 - Nonurban Residential Transitional Density; 1.1 to 2 dwelling units per acre	Low Density Residential 1-6 units per gross acre	Single-Family Residential (0-2 du/ac)
UR1 - Urban Residential Transitional Density; 2.1 to 3.0 dwelling units per acre		Single-Family Residential (0-3 du/ac)
UR2 - Urban Residential Low Density; 3.1 to 4.5 dwelling units per acre		Single-Family Residential (0-6 du/ac)
UR3 - Urban Residential Moderate Density; 4.6 to 6.5 dwelling units per acre		
MR1 - Medium Density Residential 6.6 to 15 dwelling units per acre	Low-Medium Density Residential 6-12 units per gross acre	Multi-Family Residential (0-16 du/ac)
	Medium Density Residential 12-22 units per gross acre	
MR2 - High Density Residential 15.1 to 30.0 dwelling units per acre	Medium Density Residential 12-22 units per gross acre	Not applicable
	High Density Residential 22+ units per gross acre	
GC - General Commercial Includes a broad spectrum of uses, such as traditional concepts of "community," "regional," and "highway-oriented."	Community and Neighborhood- serving commercial uses can be appropriately established at locations which conveniently serve local market areas. They are not shown on the Land Use Map.	Community Commercial
SRC - Subregional Commercial Uses serving a market of 25,000 to 50,000 residents. Typically includes small department store and supporting uses.		Neighborhood Commercial

Table VIII-D-1 (Continued)
Land Use Comparison

City of Lancaster	County of Los Angeles	City of Palmdale
RC - Regional Commercial Uses serving a market of 150,000 to 200,000 residents. Typically includes major department stores and supporting uses. Major Commercial Central business districts, regional office complexes, major shopping malls and centers, major commercial recreation facilities, and a range of mixed commercial retail and service activities. Regional Commercial OP - Office Professional Includes office and professional uses and supporting retail and commercial services.	Office and business park uses can be appropriately established at locations which conveniently serve local market areas. They are not shown on the Land Use Map.	Office-Commercial
BP - Business Park Includes a mix of industrial and office uses, as well as commercial uses which support area businesses.		
LI - Light Industry Clean, nonpolluting industries. Includes industrial park, office, and support commercial uses.		Light Industrial
MI - Medium Industry Includes a range of industrial and support uses.	Major Industrial Manufacturing of all types, mineral extraction sites, refineries, warehousing and storage, and product research and development.	Heavy Industrial
HI - Heavy Industry		
H - Health Care Includes public and private hospitals and health care facilities.	Public and Semi-Public Facilities Includes airports and other transportation facilities, solid and liquid waste disposal sites, utilities, public buildings, public and private educational institutions, religious institutions, hospitals, detention facilities, and fairgrounds.	Public Facilities
S - School Includes public and private schools and educational institutions.		
P - Public Uses in public ownership, including governmental administration and service facilities.		
O - Open Space Includes urban utility corridors and spaces, flood control and drainage areas, reserves and preserves, and lakes and rivers.	Significant Ecological Areas Lands with important biological resources.	Resource Conservation Areas

Table VIII-D-1 (Continued)
Land Use Comparison

City of Lancaster	County of Los Angeles	City of Palmdale
	Nonurban Lands primarily include mountain, foothill, and high desert areas not currently planned for urban use or scheduled to receive an urban level of service. Open Space Includes areas committed to long term open space use, and lands intended to be used in a manner compatible with open space objectives. Major open space areas include regional parks, beaches, golf courses, cemeteries, sanitary land fills, and military reservations.	
PK - Parks Includes publicly owned parks and recreation facilities.		Parks
C - Cemetery Includes cemeteries, funeral homes, mausoleums, crematoriums, and columbariums.		Public Facilities
SP - Specific Plan Areas designated Specific Plan.	SP - Specific Plan Areas designated Specific Plan.	Not applicable

Source: Planning Network, 1991

(2) Caltrans Plans

The California Department of Transportation (Caltrans) is responsible for the planing, building, maintenance, and operation of the State highway system, including all freeways, along with limited responsibility for planning and funding transit facilities. In 1991, Caltrans released the Antelope Valley Sketch "Master Plan" of Highways Report (1991) to identify additional highway facilities and complement the proposed Route 138 Freeway. This report was not a formal study, but reflected the consensus of representatives from the Cities of Palmdale and Lancaster, Los Angeles County, and the Southern California Association of Governments' (SCAG). It is Lancaster's responsibility to keep abreast of changes at Caltrans that will influence roadways in its sphere of influence. (For more information regarding Caltrans, see Physical Mobility, V-A.)

(3) Los Angeles County Plan

In Lancaster, as in most cities, land use is closely related to circulation, particularly freeways, highways, and bikeways. The unincorporated area surrounding the City is governed by the Los Angeles County Highway Plan, the purpose of which is to promote the orderly extension and upgrading of the planned arterial highway system in unincorporated territory. The Plan serves as a guide for right-of-way protection and roadway improvements within subdivisions and other development projects subject to County controls. The Highway Plan map shows Routes 138, 48, and 126, located in the Antelope Valley, to be constructed in stages, utilizing expressway standards and existing facilities whenever appropriate. Route 138 runs from Interstate 15 in San Bernardino County west to Palmdale, where it connects with the Antelope Valley Freeway. It continues west along Avenue D, where it connects with Interstate 5 near Gorman. Route 48 is the proposed Lancaster Freeway to be built west of the Antelope Valley Freeway between Avenue D-4 and Avenue D; Route 126 is the proposed Santa Clara River Expressway connecting the Golden State Freeway to the Antelope Valley Freeway, approximately 15 miles southwest of Lancaster. Routes within the unincorporated Los Angeles County are designated according to four classifications: Major Highway, Secondary Highway, Limited Secondary and Parkway.

Major Highways are of countywide significance, and are the most heavily traveled routes. These roads generally require four or more lanes for traffic, channelized medians, and to the extent possible, access control and limits on intersecting streets. The normal right-of-way width for these highways is 100 feet, but may vary to meet circumstances.

Also classified as major highways are key (inter-urban) connectors, non-urban accessways, and recreational roads. The bulk of these routes are not planned for urban type improvement, however, the full major highway right-of-way width of 100 feet or more is generally required to maintain adequate safety and noise standards. Portions of these rights-of-way are needed for recreational uses, such as equestrian and bike trails, and for other transportation uses, such as turnouts.

Secondary Highways include urban routes which serve, or are planned to serve, a regional or countywide function, but are less heavily traveled than major highways. In a few cases, routes which carry major highway levels of traffic are classified as secondary highways because it is impractical to widen them to major highway standards. In addition to the countywide functions, secondary highways frequently act as oversized collector roads feeding the countywide system. In this capacity, the routes serve to remove heavy traffic from local streets, especially in residential areas.

In urban areas, secondary highways normally have four moving lanes of traffic with 80 feet of right-of-way. Configuration and width may vary, depending upon traffic demand and topography of the area. Access control, especially to residential property and minor streets, is desirable along these roads.

The secondary highway classification also applies to connector highways to, and between, non-urban communities. In the flat lands of the Antelope Valley, acquisition or retention of 80 feet of right-of-way for many of the non-urban access routes is required for traffic safety and/or to allow for multiple use of the right-of-way. In non-urban areas, secondary highways are ordinarily improved with only two lanes of moving traffic. Additional traffic lanes, left-turn pockets, and other facilities may be provided where traffic conditions or the nature of development on adjacent property warrant.

Limited Secondary Routes are located in remote foothill, mountain, and canyon areas. Their primary function is to provide access to low-density settlements, ranches, and recreational areas. The standard improvement for limited secondary routes is two traffic lanes with 64-feet of right-of-way. The right-of-way may be increased to 80 feet for additional improvements where traffic or drainage conditions warrant. Typically, such improvements consist of 28-30 feet of pavement with graded shoulders. Left-turn pockets and passing lanes may be provided when required for traffic safety.

Parkways relate to urban and non-urban routes having park-like features either within or adjacent to the roadway. The width of right-of-way varies as necessary to incorporate these features, but shall not be less than 80 feet. Roadway improvements vary, depending upon the composition and volume of traffic carried.

The City of Lancaster has six (6) major roadway classifications to describe its planned roadway network: expressway, regional arterial, major arterial, secondary arterial, collector, and local. The expressway has a 150 foot right-of-way, while the regional arterial has a 120-foot right-of-way. Major arterials are proposed to be spaced at approximately one-mile intervals, and represent the major carrying capacity for traffic within and beyond the City. Current design standards for a major arterial are paved sections of 84 feet within a 100-foot right-of-way. Several of the major arterials have connecting segments which vary in the number of operating lanes. The City's Expressway and Major Arterial classifications are similar to the County's Major Highway designation. In addition, the City's Secondary Arterial and Collector classifications are similar the County's Secondary Highway and Limited Secondary classification, as both require 80-foot and 64-foot rights-of-way, respectively. Substantial differences are found between other designations. The County does not have Expressway or Local classifications, and the City does not have a Parkway classification.

Minor or secondary arterials are spaced at approximately one-half mile intervals between the major arterials, and provide access to the major arterials. Current design standards for a secondary arterial are paved sections of 64 feet within an 80-foot right-of-way width. Collector streets are 40-foot roadways in 64-foot right-of-way, while local streets are 36-foot roadways in 60-foot right-of way.

The Los Angeles County Highway Policy Plan does not propose extensive road improvements within the City's sphere of influence. The County Plan designates many of the alignments within the City and its sphere area as existing and potential "routes to serve urban or urban-related areas," and therefore, the County contends that these routes should receive the majority of funds for maintenance, rehabilitation, right-of-way protection, and new construction. These alignments designated within the County Plan include all streets in Lancaster which comprise the one-mile grid. The City General Plan also recognizes this need for improving all of its streets for existing and future activities.

One of the major consistency problems between the City and County with regard to circulation is that much of the County's Master Plan of Highways west of 40th Street West and east of 40th Street East shows primary and secondary roads at rural standards, while the City calls for urban standards. The County is in the process of updating their Master Plan of Highways and coordinating with the Cities of Lancaster and Palmdale to reflect new uses in this area.

There are substantial differences between the bicycle master plans of the City and County. The City of Lancaster has designated more streets to have bike lanes than the County. Presently, the following streets have existing bike lanes: Avenue L between 70th Street West and 20th Street West, on 30th Street West between Avenue L and Avenue J, on two sections of Lancaster Boulevard, and on portions of 5th Street East and 15th Street East (see Figure V-A-3 in Physical Mobility). The County Bikeway Plan has designated bike lanes only along Sierra Highway; Avenues I, J, K; and 30th Street West. Currently, all of these streets, with the exception of 5th and 15th Street East and Lancaster Boulevard, are not compatible for bike lanes under either plan.

(4) City of Palmdale

Current talks are underway between the Cities of Lancaster and Palmdale and Los Angeles County to modify highway standards to improve coordination of rights-of-way. The City of Palmdale has been in the process of updating their General Plan. Through this process, transportation concerns have been discussed with the City of Lancaster.

c. Impact of Regional Plans on Land Use

(1) Air Quality Master Plan

Air pollution physically transcends city and county boundaries, and is, therefore, a regional problem. The Air Quality Master Plan (AQMP) must, therefore, rely on interagency commitment and cooperation to improve air quality in the region. This plan lays out strategies to lead the basin in meeting state and federal air quality standards. Programs set forth in the plan will require cooperation of all levels of government. At the regional level, the Southern California Association of Governments (SCAG) assumes a leadership role. In cooperation with local jurisdictions, SCAG develops transportation and land use control strategies for jurisdictions to implement, and, as a coordinator, SCAG facilitates the implementation of these strategies. (For more information on air quality, see Natural Environment, II-B.)

(2) Southern California Association of Governments Regional Housing Needs Assessment

The Regional Housing Needs Assessment (RHNA) is the tool which local jurisdictions use to determine their housing needs. Through RHNA, jurisdictions plan for the provision of housing adequate to meet regional housing needs. Each jurisdiction's allocation is to be used by it in the Housing Element of the General Plan. The type and tenure of the housing that is needed is also analyzed as part of the RHNA. RHNA determines the housing growth that local jurisdictions will plan for in the Housing Elements of their General Plan. Local zoning, subdivision, and other regulation will conform to Lancaster's General Plan, thereby implementing the RHNA, and indirectly, influencing land use patterns. (For more information, see the Housing Characteristics Section of Living Environment.)

(3) Los Angeles County Hazardous Waste Management Plan

On November 30, 1989, the California Department of Health Services approved the Hazardous Waste Management Plan for the County of Los Angeles. This plan describes and defines existing conditions, future conditions, needed management facilities, and recommended action programs on a County-wide basis. To comply with this plan, the City of Lancaster developed an ordinance which requires that all applicable zoning, subdivision, conditional use permit, and variance decisions be consistent with the applicable portions of the Los Angeles County Hazardous Waste Management Plan. The Ordinance establishes a comprehensive application and review process, as well as detailed siting criteria for hazardous waste facilities. This will ensure that site development of hazardous waste facilities occurs in an orderly, safe, and environmentally sound manner. (For more information on hazardous waste, see Public Health and Safety, Section III-E).

2. ANALYSIS

There were several conflicts noted that may arise when coordinating different General Plans related to conflicting permitted land uses and circulation issues.

a. Land Uses

Generally, there is good correlation between the land use maps for the Cities of Palmdale and Lancaster from 20th Street East, west to 110th Street West. There is also good compatibility between 50th Street East and 70th Street East along Avenue L, where the City of Lancaster designates land business park and Palmdale is committed to heavy industry. However, as discussed earlier, there are some land use conflicts in two areas: from 20th Street East to 50th Street East, and from 70th Street East to 120th Street East, where Lancaster is designating land at various residential densities and Palmdale has designated land heavy industry. The County of Los Angeles also designates most of this area for Major Industrial uses. Industrial uses create noise disturbances, increased traffic volumes, and vehicle emissions, conflicting with residential uses.

Currently, land use designations outside the City are consistent with Los Angeles County designations. It will be important to coordinate with the County to maintain rural residential developments in outlying areas and large lot single family homes in Quartz Hill.

There are several measures that can be taken to achieve land use compatibility. The three jurisdictions can identify areas which are affected by actions occurring in each jurisdiction. The unincorporated area between Lancaster and Palmdale west of the Antelope Valley Freeway is one example. Existing land uses need to be identified. Future land uses would then only be allowed when they are compatible with the existing uses. As a general rule, "compatible" means that a land use will not cause a significant detriment to residents', workers', and/or patrons' use and enjoyment of property. Potential conflicts can be mitigated so as to create harmonious relationships between uses which might otherwise be incompatible. General factors to be assessed in determining the compatibility of two land uses include: ultimate land use objectives, intensity of use, hazards and nuisances, aesthetics and design, and economic and public use factors. Prioritization of needs and aims of the City provide a basis for determining use compatibility; the various jurisdictions need to prioritize issues associated with establishing future uses in interface areas prior to the actual designation of land uses.

Coordination between City departments can be fostered by the review of projects and actions by a central group or committee. The Development Review Committee serves this function in Lancaster. This committee meets weekly, and is comprised of members from both the Planning and Public Works Departments, as well as some outside agencies. The primary function of the group is to review and discuss projects and actions which affect the physical, social, and/or economic character of an area. In addition, periodic meetings with the Public Facilities Task Force include discussions with outside agencies concerning common problems. These committees provide a forum for the various agencies within Lancaster to exchange ideas and information pertaining to land use issues.

b. Circulation

Conflicts are created by the discontinuity of several roadway segments in the area. The Lancaster General Plan designates streets along the one-mile grid as major arterials, and those streets within the half-mile grid as secondary arterials. Primary arterials have an ultimate right-of-way of 100 feet, while secondary arterials have an 80-foot right-of-way. Palmdale has identical designations and rights-of-way standards. At full development, no conflict arises. However, the streets are not presently at their ultimate widths, therefore, conflicts may be created if the phasing and timing are not consistent between the two cities. For example, a street in Lancaster may be improved to its 100-foot right-of-way; however, if Palmdale does not also improve the same road to 100 feet, then the benefits to be derived from the improvement, such as increased capacity or smoother traffic flow, would be lost.

The County of Los Angeles is in the process of adopting urban roadway standards in much of the study area west of 40th Street West and east of 40th Street East. Any conflicts should be resolved during this update.

The Antelope Valley Trails Council has been working with public agencies, the Cities of Lancaster and Palmdale, the County of Los Angeles, the State of California, and interested unincorporated communities to develop a trails system for the Antelope Valley. This system would not only serve the valley, but also connect regions outside the valley.

c. Regional Plan Issues

There are many existing regional agencies whose purpose is to ensure coordination among planning agencies. The following governments influence planning activities in Lancaster:

- The Southern California Associating of Governments (SCAG) is the designated areawide planning agency for the Southern California region.
- Los Angeles Local Agency Formation Commission (LAFCo) is the agency that oversees incorporations, annexations, and successions.
- South Coast Air Quality Management District (AQMD) is a four county agency charged with the task of restoring clean air to the portions of Los Angeles, Orange, Riverside, and San Bernardino counties within the South Coast Air Basin (SOCAB), and to the Riverside County portion of the Southeast Desert Air Basin (SEDAB).
- California Regional Water Quality Control Board-Lahontan Region is an agency (formed in 1970 under the Clean Water Bond Act), in charge of preserving and enhancing water quality and protecting beneficial uses of water in a manner which will result in maximum benefit to the people of the State.

A regional body may also be created to ensure coordination among planning agencies. In 1990, AB 4242 was proposed by Assembly Speaker Willie Brown, which would limit local control in most of California and divide the State into seven regional governments. According to AB 4242, new regional governments would take over the powers and responsibilities of local agency formation commissions, councils of government, air pollution control districts, and regional water quality control boards.

There are several benefits to be derived from the establishment of these regional planning agencies. By consolidating the functions of several regional agencies, a centralized forum for the exchange of regional-level ideas, data, information, and plans pertaining to land use and development issues emerges. This centralized forum ensures that all appropriate agencies would have access to pertinent regional data and become aware of issues affecting other agencies and jurisdictions. Consequently, land use patterns could be created which are consistent and compatible with other jurisdictions within a particular region.

On the other hand, there are several negative aspects associated with the establishment of regional agencies. For example, each agency may be too powerful, given that their responsibilities include the function of several existing regional agencies. An associated problem may be that these agencies cover too many issues, ranging from transportation, air pollution, and water quality to annexations, thus resulting in confusion.

Another problem develops when all issues are discussed and evaluated at a regional level; often, "academic" evaluations emerge, ignoring the day to day aspects of planning at local levels. The question arises as to whether these regional agencies are to be considered advisory to City agencies or jurisdictions in control. There is also the possibility that this would create another level of government that could further complicate the development review process.

Questions that remain unanswered include: Who funds these agencies? Are existing regional agencies abolished? If a city is assigned to a regional government, can the city also become involved in another regional government if they feel they need to coordinate with more than one government? Geographic proximity is not the only variable that ties areas together. It is important to keep these issues, as well as the need for regional cooperation, in mind.

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